MORITA

Panorama X-ray Unit

Veraview IC-5

Veraview IC-5

Operation Instructions

CE
0197

Manufactured by J. MORITA MFG. CORP.

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Thank you for purchasing the Veraview IC-5 Super High Speed, a direct current, dental panoramic X-ray apparatus.
For optimum safety and performance, read this manual thoroughly before using the unit and pay close attention to the warnings and notes.Keep this manual in a handy place for ready reference.

* ATTENTION

The J. Morita Mfg. Corp. will not be responsible for accidents, instrument damage, or bodily injury resulting from

1. repairs made by personnel not authorized by the J. Morita Mfg. Corp.
2. any changes, modifications, or alterations of its products
3. the use of products or instrument made by other manufacturers, except for those procured by the J. Morita Mfg. Corp.
4. maintenance or repairs using parts or components other than those specified by the J. Morita Mfg. Corp. and other than in their original condition
5. operating the instrument in ways other than the operating procedures described in this manual or resulting from the safety precautions and warnings in this manual not being observed
6. workplace conditions and environment or installation conditions which do not conform to those stated in this manual such as improper electrical power supply
7. fires, earthquakes, floods, lightning, natural disasters, or acts of God

The J. Morita Mfg. Corp. will supply replacement parts and be able to repair the product for a period of 10 years after the manufacture of the product has been discontinued.

* The user (i.e., clinic, hospital etc.) must perform the inspection procedures specified in the Regular Inspection Check List every six months.
* Parts must be replaced periodically as necessary. The Regular Inspection Check List includes replacement parts.

Caution: Federal law restricts this device to sale by or on the order of a dentist (for U.S.A.).

SAFETY / WARNINGS / PRECAUTIONS

The majority of operational and electro-mechanical problems are the result of not following the instructions and maintenance as presented in this manual. Please operate and maintain the equipment in accordance with the manufacturer‘s recommendations.

The equipment should be operated in accordance with this manual to avoid damage to the equipment or potential bodily harm to the patient and / or operator.

The owner / user is the party responsible for the proper operation and maintenance of the (medical device) equipment.

This is a medical device and must be operated by dentists and other properly licensed personnel.

This equipment is designed as a dental diagnostic device - Do not use this equipment for other non-designated purposes.

When using this operation manual please make special note of the meaning and follow the instructions and symbols used for warnings, radiation symbols, notes to utilize the Veraview IC-5 in a correct and safe manner for both the operators‘ and the patients’.

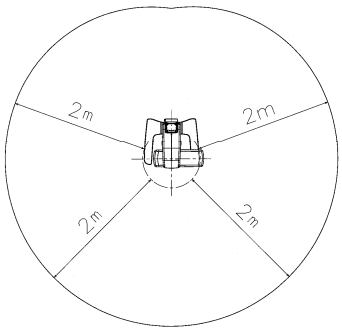
Note the meaning of the following symbols and expressions:

⚠ **WARNING**	This warns of the possibility of bodily injury to the patient or a health hazard.
⚠ **NOTE**	This alerts the user to the possiblity of damage to the equipment or important points concerning operation and performance.

1. Warnings and Notes for Safe Operation

⚠ WARNING

- *This X-ray unit may be dangerous to PATIENT and OPERATOR unless safe exposure factors and operating instructions are observed.*
- *Only dentists and other legally qualified and authorized personnel are allowed to operate this equipment.*
- *MEDICAL ELECTRICAL EQUIPMENT needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in the ACCOMPANYING DOCUMENTS.*
- *Portable and mobile RF communications equipment can affect MEDICAL ELECTRICAL EQIPMENT.*
- *Use of parts other than those accompanied or specified by J.Morita Mfg. Corp. may result in increasd EMC emissions or decreased EMC immunity of the EQUIPMENT.*
- *The EQUIPMENT should not be used adjacent to or stacked with other equipment and that if adjacent or stacked use is necessary, the EQUIPMENT should be observed to verify normal operation in the configuration in which it will be used.*
- *This unit is only for use in an X-ray shielded room providing 20dB attenuation or higher against electromagnetic radiation over the range 30MHz to 1GHz.*
- *Do not use this unit for patients who have a pacemaker; the pacemaker could malfunction or operate in an abnormal or random way.*
- *Do not use this unit for fluoroscopic examinations.*
- *Do not use this unit for women who are or might be pregnant.*
- *Do not use the wireless transmission devices listed below in the examination area; electromagnetic interference from these devices could cause the Veraview IC-5 to operate in a random, unexpected and dangerous manner.*
  1. *Cell phone terminals*
  2. *Wireless transmitting devices such as ham radios, walkie-talkies, and transceivers*
  3. *Cell phones*
  4. *Routers for intra-building paging systems, wireless LAN cordless, analogue telephones, and other electric wireless devices*
- *Interference from the devices listed below could cause the unit to operate in a random, unexpected and dangerous manner. They should not be placed in the X-ray examination booth, or they should be turned off whenever the unit is being used.*
  1. *Electric medical devices for examination, diagnosis and treatment.*
  2. *Personal computers*
- *The Unit must be installed in an X-ray shield location. Local regulation for radiation protection must be observed.*
- *If the unit is not enclosed by an X-ray booth or other protective barrier, everyone except the patient must stay outside the area shown in the illustration during X-ray emission.*
  The X-ray protection area should consist of a wall, floor and ceiling with a minimum of 1.5 mm lead shielding or its equivalent and should have glass windows with a minimum of 1.5 mm lead shielding or its equivalent, through which the operator can obverve the patient. A sign should clearly identify the area as an X-ray protection area, and a caution sign should light up during X-ray emission. Observe local regulations.



⚠ WARNING

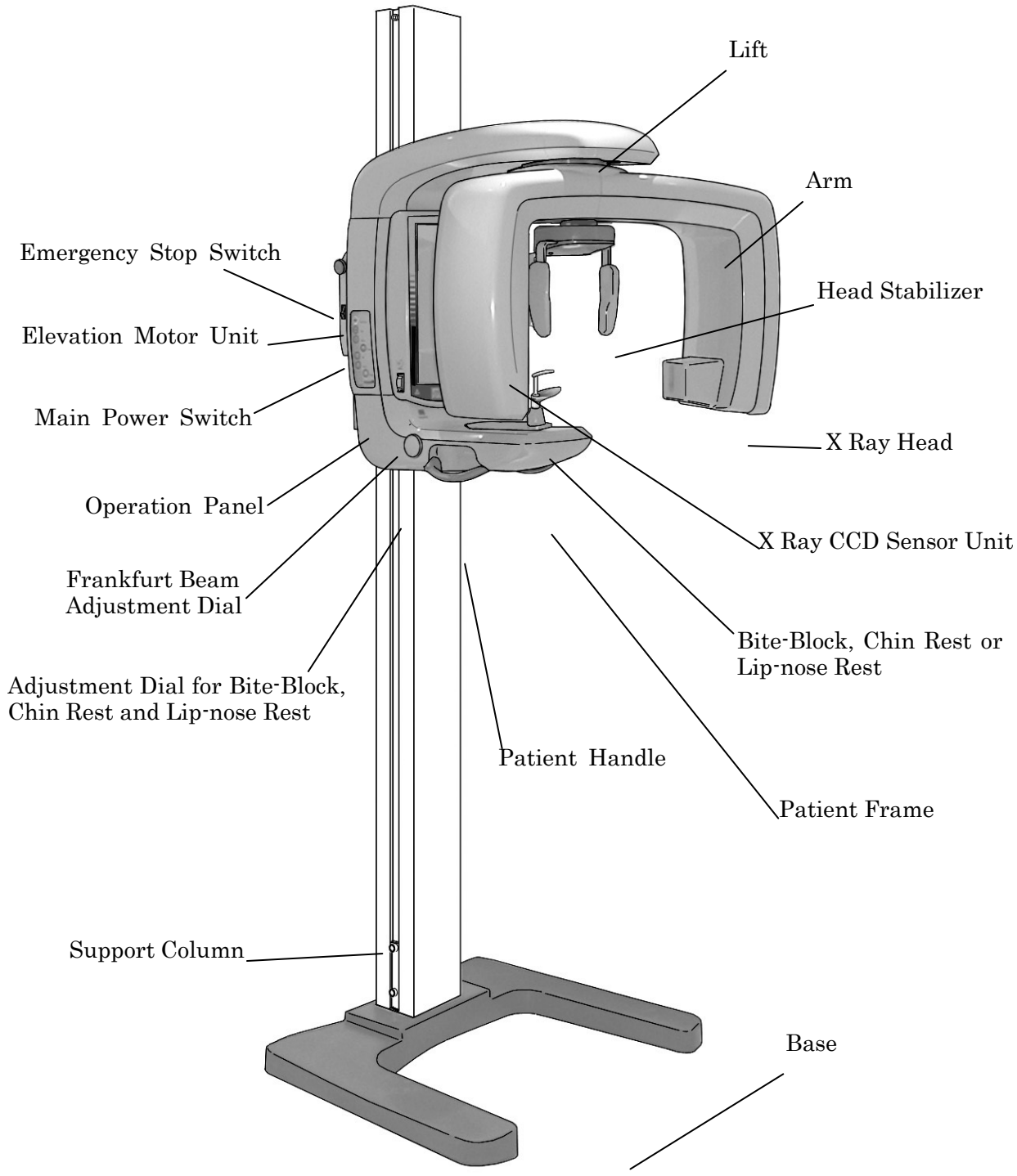
- *The patient must be provided with appropriate X-ray protection gear such as lead-impregnated clothing that conforms to local regulations.*
- *The operator must be able to see the exposure emissions lights and hear the audible signal during operation of the equipment.*
- *The operator must be able to see and hear the patient during the operation of the equipment.*
- *Proper radiation safety precautions must be established in accordance with local, state and governmental regulations in regards to operator and patient protection. The ultimate responsibility lies with the owner/operator to ensure that the protection requirements of national and local codes are met.*
- *Proper infection control procedures must be established and maintained for each patient.*
- *Focal Spot and Skin Distance should be as great as possible to keep the absorbed X-ray dosage as low as reasonably achievable.*
- *Do not leave anything within the movement area of the arm, lift and patient frame.*
- *Avoid the risks of electrical shock, equipment damage and fire during an electrical storm: Have the patient immediately go away from the equipment, turn off the main switch, and unplug the equipment. (See page 11.)*
- *The patient must wear an X-ray protection apron. (See pages 12, 15 and 20.)*
- *A new, uncontaminated cover must be used for each patient. (See page 12.)*
- *The beams are lasers that could injure the eyes; never look directly into them or allow them to strike anyone in the eye. (See page 13.)*
- *A new, uncontaminated mouthpiece must be used for each patient. (See page 15.)*
- *A Class 2 laser is used for positioning beams.*
  The positioning beams are lasers that could injure the eyes; never look directly into them or allow them to strike anyone in the eye. (See pages 16 and 20.)
- *Tell the patient not to move during X-ray emission or while the audible signal is sounding; other wise, the arm might strike the patient or the exposure might be ruined. (See pages 14, 17, 21 and 22.)*
- *Leave the X-ray booth before pressing the emission button. (See pages 14, 17, 21 and 22.)*
- *In an emergency release the emission button to stop the arm and X-ray emission. Or press the emergency switch. (See pages 14, 17, 21 and 22.)*
- *Make sure the patient is well away from the X-ray unit before pressing the Ready key. (See pages 18 and 22.)*
- *To stop the arm in an emergency when it is returning to its start position, press the Ready key on the operation panel, the emission button or the emergency switch. (See pages 17 and 22.)*
- *Do not fail to turn the unit off after use; this will avoid the risk of electrical leakage or unintended operation. (See page 23.)*
- *Always turn off the main switch before disinfecting outer surfaces. Otherwise there is a risk of electrical shock and burns as well as the possibility of accidents due to the accidental pressing of switches or keys. (See page 25.)*

⚠ NOTE

- *If an "X" appears above the icon in the customized tool bar, check the cable connections for the HUB and Ethernet. (See page 10.).*
- *If the emergency stop switch was pressed during the transmission of data, wait unitl the transmission is completed before turning off the main switch. However, if the transmission is not completed after 3 minutes, go ahead and turn off the main switch anyway. (See page 11.)*
- *Have the patient remove glasses, earrings or other objects that could spoil the X-ray. (See pages 12, 15 and 20.)*
- *The beams turn off automatically after 60 seconds except during an exposure. After an exposure, the beams go out after the arm rotates to the patient egress position and stops. (See page 13 and 16.)*
- *Continue to hold the emission button down until the exposure is finished. Otherwise, the exposure will not be completed. (See pages 14, 17, 21, and 22.)*
- *Never turn off the main switch while data is being transmitted. This will cause the image to be lost and the computer to freeze. During data transmission, the Data Transmission LEDs on the operation panel and the Ready lamp on the control panel flash on and off. (See pages 14, 17 and 22.)*
- *A portion of the Bite-Block will be visible in the image as it lies within the X-ray field. (See page 14.)*
- *If the image transfer stops before the image is shown on the PC display, leave the Veraview IC-5 unit on and check the LAN connection. The last image is possibly retrieved if the LAN connection can be re-established properly before turning off the unit. (See pages 18 and 22.)*
- *Do not soak in disinfecting alcohol or alkaline, acidic cleaning solutions, cresol liquid soap, or other types of chemicals. Doing so can lead to deformation and other damage to the Bite Block and Plate. (See page 25.)*
- *Avoid discoloration and other damage to the outer surfaces and the seat; do not use alkaline or acidic cleaning solutions, cresol liquid soap, or other types of chemicals. Use only ethanol or a neutral detergent. (See page 25.)*
- *If a chemical solution is accidentally spilled on the outer surface or the seat, use ethanol to immediately wipe it off. (See page 25.)*
- *The values displayed in dialog (1) are not saved. Ensure that the values are recorded before pressing the OK button. (See page 39.)*
- *No further exposures can be made until this dialog is closed. (See page 39.)*
- *In TMJ exposure mode, for each exposure (mouth opened and mouth closed) dialog (1) will be displayed. Be sure to add the resulting Dose-Area-Products. (See page 39.)*
- *Be careful not to trip over the LAN cable. It may damage the LAN connectors, communication circuit and/or the PC.*

2. Overview and Parts Identification

1) Parts Identification



2) Operation Panel and Control Box Description

Operation Panel

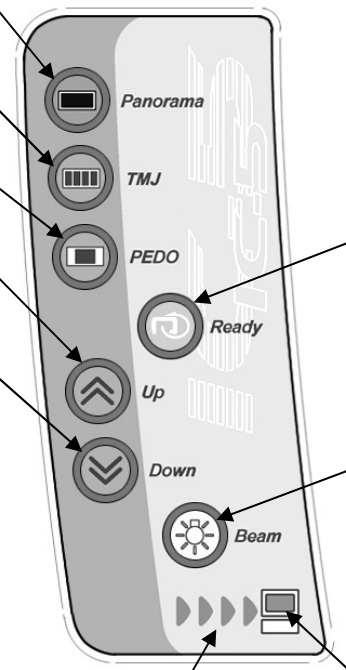
1) Panorama Key : Green lamp lights up when set

2) TMJ Key : Green lamp lights up when set

3) Pedodontic Key : Green lamp lights up when set

4) Up Key : Hold down to raise lift
- Lights up when lift is moving
- Goes out when lift stops

5) Down Key : Hold down to lower lift
- Lights up when lift is moving
- Goes out when lift stops



6) Ready Key : Press to set unit for exposure
- Green when unit is ready to make an exposure
- Otherwise, it may be out or flashing green

7) Beam On and Off Key: Press to turn the beams on and off
- Lights up green when beams are on.
- Lamp is off when beams are off.

8) Data Transmission Status Indicator : Confirms Transmission Status
- Lights up green when unit is ready to make an exposure
- Flashes orange during data transmission
- Flashes red to indicate transmission failure

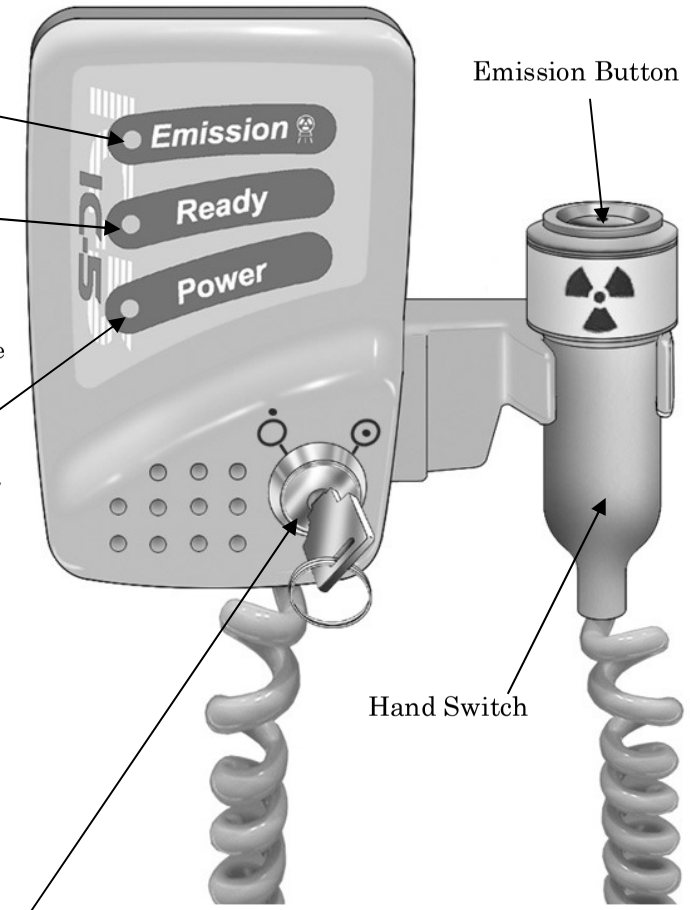
9) Data Transmission Indicator: Flashes while data is being transmitted.

Control Box

10) Emission Lamp: Light up yellow during x ray emission.

11) Ready Lamp:
- Green: Ready for exposure
- Flashing Green: Ready for transmission but not for exposure.
- Flashing Orange: Data Transmission
- Flashing Red: Data Transmission Failure

12) Power Lamp:Blue: Power On
- Flashing Blue: Auto Power Off



Key Switch (Option)
Turn the key off to disable the Emission Button.
Take the key out to prevent unauthorized use.
This also prevents any accidental use of the Emission Button.

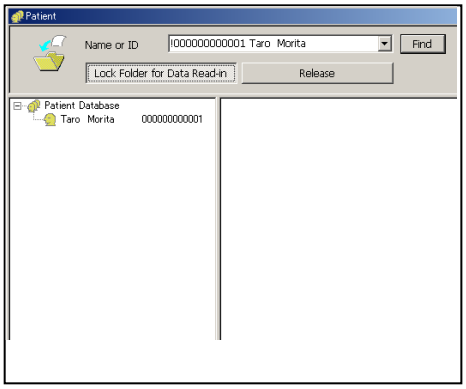
3. Installation

* Refer to the separate installation manual.

Other systems (PC, monitor, etc.) are necessary for this unit for image acquisition, display and preservation.
For computer system requirements refer to the section titled “Requirements for Computers and their Peripheral Devices” in part 9. Technical Discription.

4. Getting Ready

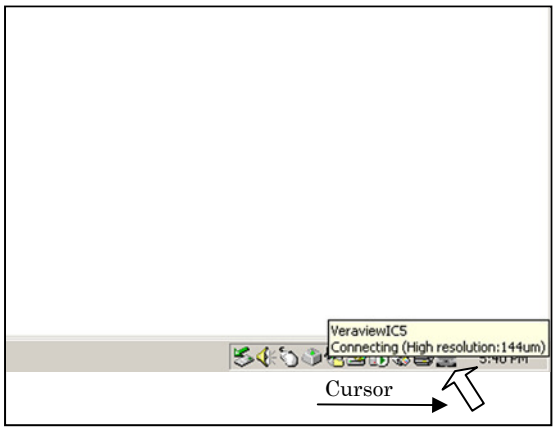
* PC Set Up (Refer to the user’s manual for i-Dixel, the Digora for Windows or other application.) Make a patient folder or open an existing one.



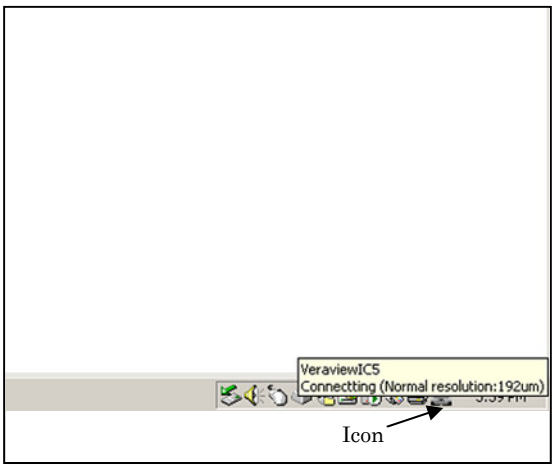
Turn the PC and HUB on and start the application software. Then turn on the Veraview IC-5.

The Veraview IC-5 checks the PC connection through the application software when it starts. An error will be reported if the application software is not open for capturing images when the Veraview IC-5 is turned on. Restart the Veraview IC-5 after starting the application software if a communication error occurs when it is turned on.

* Select the radiographic resolution
The computer is used to set the resolution (speed) for the IC-5.
Standard resolution (Super high speed radiographic mode)
High resolution (High speed radiographic mode)

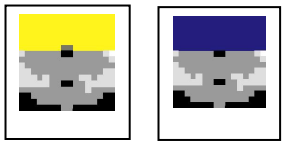


1. Check resolution
   Place the cursor on the icon in the customized tool bar to check the resolution.



2. Change Resolution
   To change the resolution, click the icon in the customized tool bar.
   Icons for Standard (192um) and High Resolution (144um) will be displayed. Check the desired resolution.

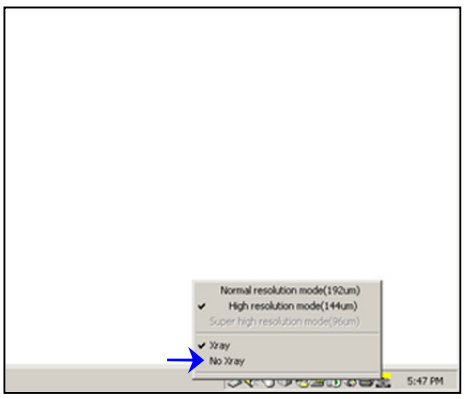
Icons



High Standard

⚠ **NOTE**

- ***If an "X" appears above the icon in the customized tool bar, check the cable connections for the HUB and Ethernet.***



To test the arm rotation without emitting any X-rays, right-click the icon and select "No X-ray".

Panorama Operation Check

Turn the main switch on and press the Ready key. Then hold the emission button down. Check that the arm starts to rotate, X-rays are emitted, the yellow emission lamp lights up and the audible signals sounds. Check that X-ray emission and arm rotation stop after the irradiation time is up. Press the emission button again to return the arm to its starting position.

* If the emergency switch has been accidentally pressed during cleaning or for some other reason, the arm will not rotate and X-rays will not be emitted. In this case, turn the emergency switch in the direction indicated by the arrow to restore normal operation.

5. General Operation and Cautionary Remarks

* The owner (clinic, hospital or medical institution) is responsible for use and matintenance of mediacal equipment. Also, this equipment must be operated only by medically qualified professionals.

Do not use this equipment for anything other than dental X-ray examinations.

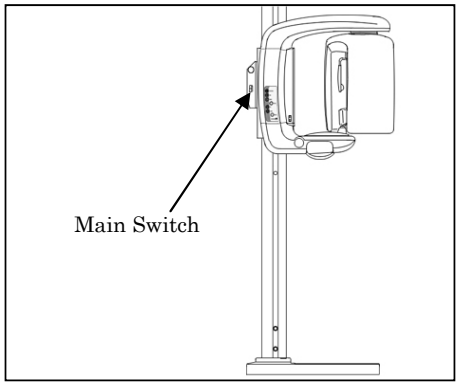
* Operation Conditions
  Ambient Temperature: 10~35°C; Humidity: 20~90% relative humidity (without condensation); Atmospheric pressure: 70~106kPa
* If an accident occurs, the equipment must not be used until repairs have been completed by a qualified and trained technician.

⚠ **WARNING** • ***Avoid the risks of electrical shock, equipment damage and fire during an electrical storm: Have the patient immediately go away from the equipment, turn off the main switch, and unplug the equipment.***

Turn the Main Switch On

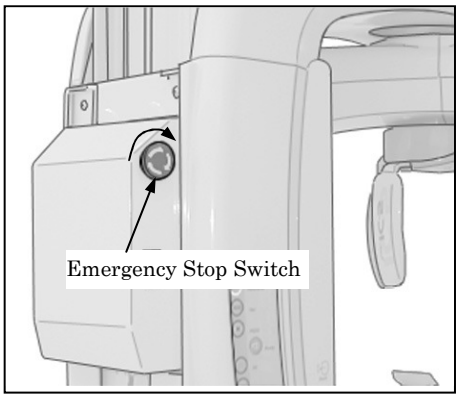
Press the top of the main switch on the support column [the side marked with a line (|)]. The blue Power Lamp on the control box will light up to show that the unit is on.

* If the unit is not used for 30 minutes, it will automatically turn itself off and the blue Power Lamp will start to blink on and off.
* Press the Ready Key to turn the unit back on.



Emergency Stop Switch

In an emergency, press the Emergency Stop Switch to stop the arm's rotation and the emission of X-rays. Do not use this switch for any other reason.



In Case the Emergency Switch Has Been Pressed

Turn the main switch off and then turn the emergency switch in the direction indicated by the arrow to put the unit back into its normal and safe operating mode. Restart the computer. Turn the unit back on and check that it operates normaly in panorama mode. If it does not, contact your local dealer or the J. Morita Mfg. Corp.

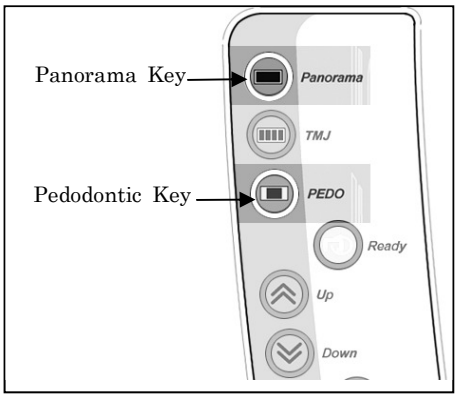
⚠ **NOTE** • ***If the emergency stop switch was pressed during the transmission of data, wait unitl the transmission is completed before turning off the main switch. However, if the transmission is not completed after 3 minutes, go ahead and turn off the main switch anyway.***

<Using the Bite-Block>

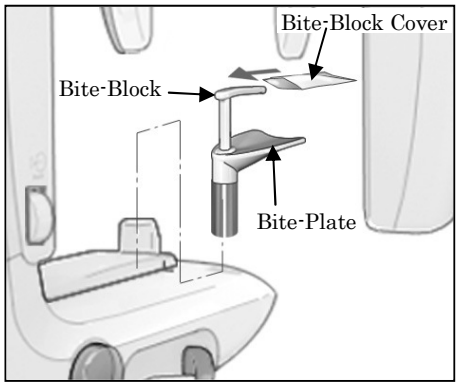
Panorama and Pedodontic Exposures [Patient Positioning and Exposure Porcedures]

Pedodontic mode is for the patients have smaller jaws such as children to reduce the X-ray dose by shortning the length of the panoramic orbit.

(1) Press the Panorama or Pedodontic key.



(2) Slide the Bite-Plate into its holder and put a new, unused cover on the Bite-Block.



⚠ WARNING

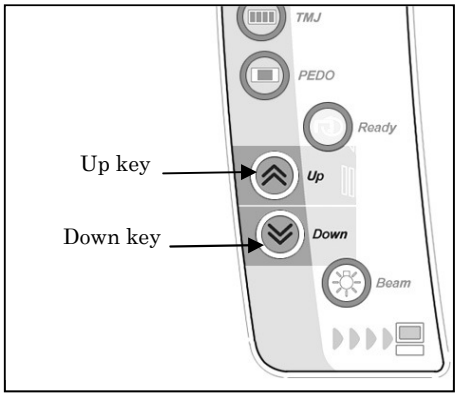
- ***The patient must wear an X-ray protection apron.***
- ***A new, uncontaminated cover must be used for each patient.***

⚠ NOTE

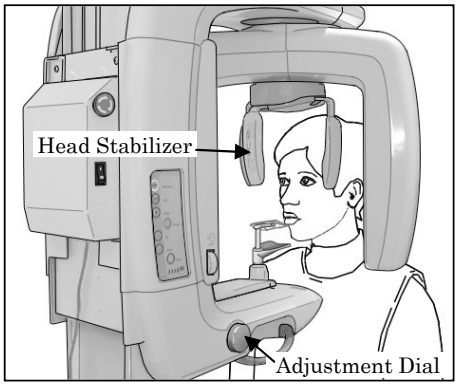
- ***Have the patient remove glasses, earrings or other objects that could spoil the X-ray.***

* Store the covers for the Bite-Block in a clean, uncontaminated area.
* Use the Chin Rest if the Bite-Block is unsuitable such as in the case of edentulous patients.

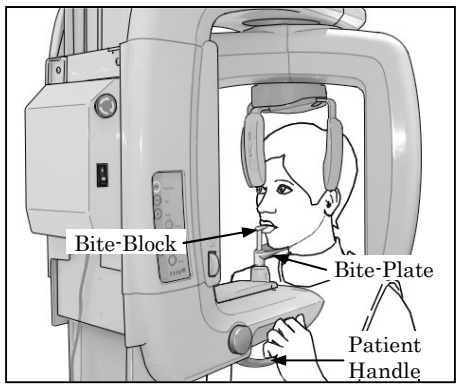
(3) Use the Up and Down keys to adjust the height of the patient frame to the patient's height.

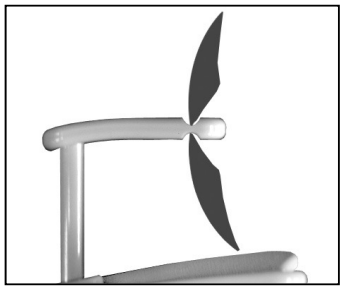


(4) Press the adjustment dial to free it, open up the head stabilizer and have the patient take his position.

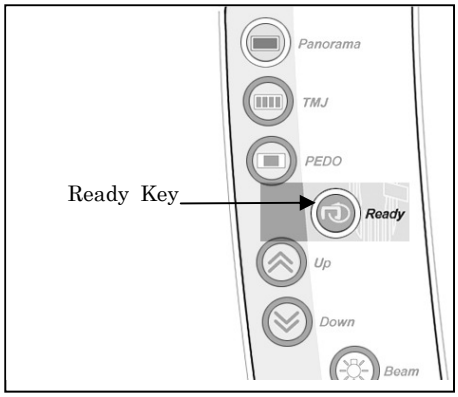


(5) Have the patient light bite down on the Bite-Block, (incisal occlusion.), rest his chin on the plate, and grip the handles. Use the Up or Down key to adjust the height of the Bite-Block. Have the patient pull his chin in and stand as straight as possible. Observe the patient from the rear to make sure he is standing straight.

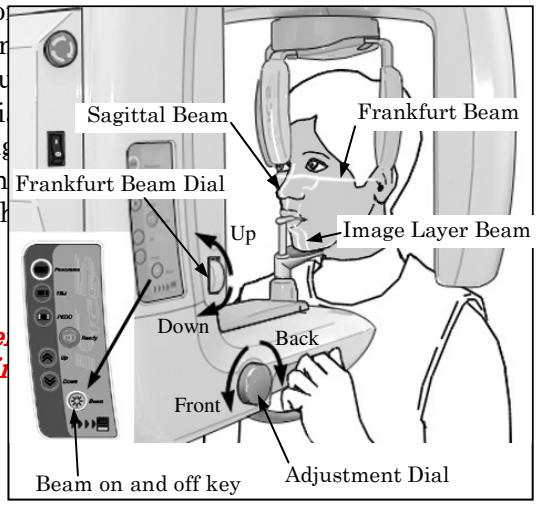




(6) Press the Ready key to move the arm into its start position.
The Ready lamp will light up green to show that the unit is ready to make an exposure.



(7) Press the Beam On and Off key to turn the beams o
Line up the patient's sagital plane with the sagital bear
Turn the dial for the frankfurt plane beam to line it u
with the patient's ear orifice. Turn the adjustment di
to move it backwards or forwards and line up the imag
layer beam with the distal edge of the upper left canin
Press the adjustment dial to lock it in place. Close th
head stabilizer.



⚠ **WARNING**

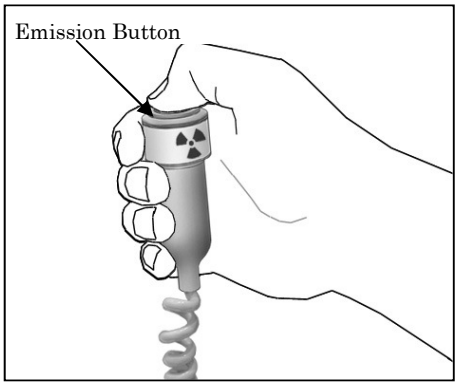
- ***The beams are lasers that could injure the eyes; neve look directly into them or allow them to strike anyone i the eye.***

⚠ **NOTE**

- ***The beams turn off automatically after 60 seconds except during an exposure. After an exposure, the beams go out after the arm rotates to the patient egress position and stops.***

* It may not be possible to release the Bite-Block when the patient has his chin resting on the plate even after pressing the dial. In this case, push the Bite-Plate slightly towards the patient.

(8) Check that the green Ready lamp is on. Pick up the handswitch and hold down the emission button. The arm will start to rotate and X-rays will be emitted. The yellow Emission lamp on the control box will light up and an audible signal will sound.



⚠ WARNING

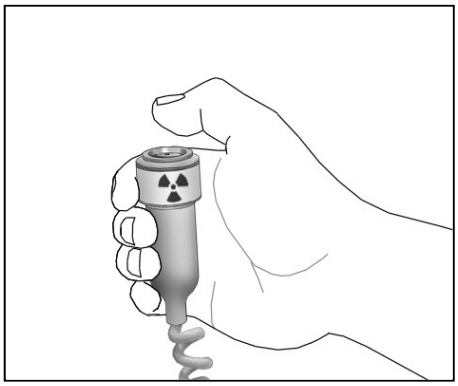
- ***Tell the patient not to move during X-ray emission or while the audible signal is sounding; other wise, the arm might strike the patient or the exposure might be ruined.***
- ***Leave the X-ray booth before pressing the emission button.***
- ***In an emergency release the emission button to stop the arm and X-ray emission. Or press the emergency switch.***

⚠ NOTE

- ***Continue to hold the emission button down until the exposure is finished. Otherwise, the exposure will not be completed.***

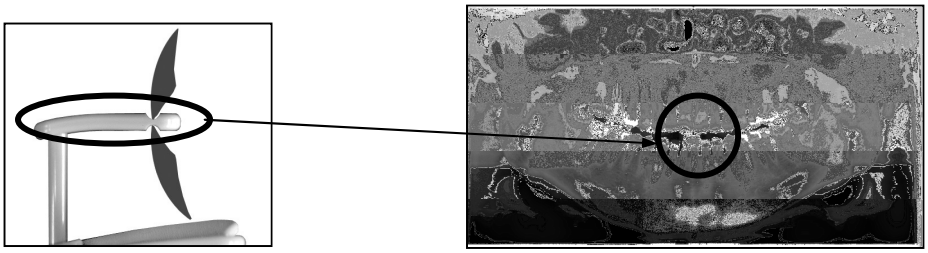
* If the exposure is interrupted, press the Ready key to return the arm to its start position and then repeat the exposure.

(9) When the exposure is completed, the Ready lamp will change to orange and flash on and off, the Emission lamp will go out, and the audible signal will stop. The arm will then rotate to the patient egress position. Release the Emission button and hang the handswitch up on the control box.



⚠ NOTE

- ***Never turn off the main switch while data is being transmitted. This will cause the image to be lost and the computer to freeze. During data transmission, the Data Transmission LEDs on the operation panel and the Ready lamp on the control panel flash on and off.***
- ***A portion of the Bite-Block will be visible in the image as it lies within the X-ray field.***

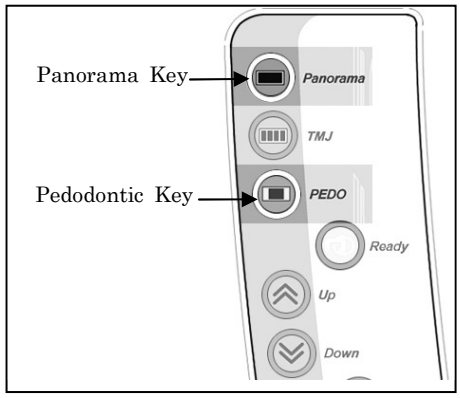


<Using the Chin Rest>

Panorama and Pedodontic Exposures [Patient Positioning and Exposure Porcedures]

Pedodontic mode is for the patients have smaller jaws such as children to reduce the X-ray dose by shortning the length of the panoramic orbit.

(1) Press the Panorama or Pedodontic key.



(2) Do not fail to have the patient wear an X-ray protection apron. Center the mouthpiece.

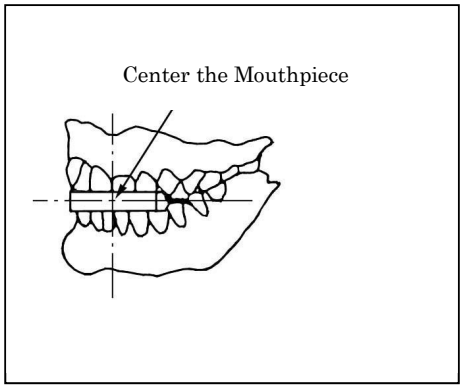
⚠ WARNING

- ***The patient must wear an X-ray protection apron.***
- ***A new, uncontaminated mouthpiece must be used for each patient.***

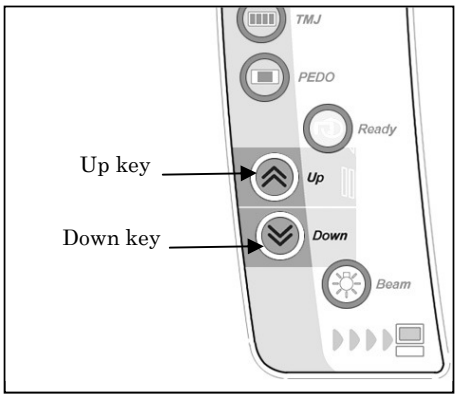
⚠ NOTE

- ***Have the patient remove glasses, earrings or other objects that could spoil the X-ray.***

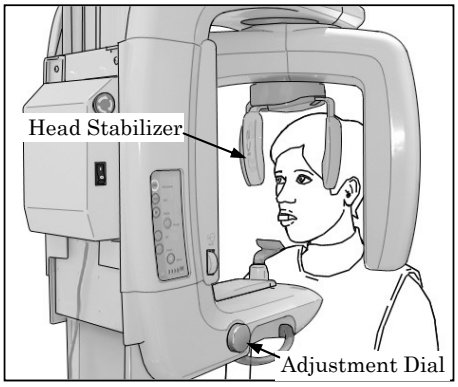
* Store mouthpieces in a clean uncontaminted place. For details, refer to the user's instructions that come with the mouthpieces.



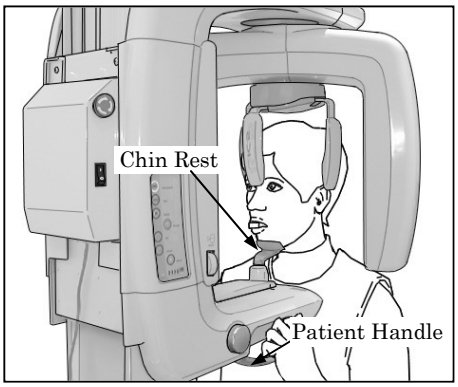
(3) Use the Up and Down keys to adjust the height of the patient frame to the patient's height.



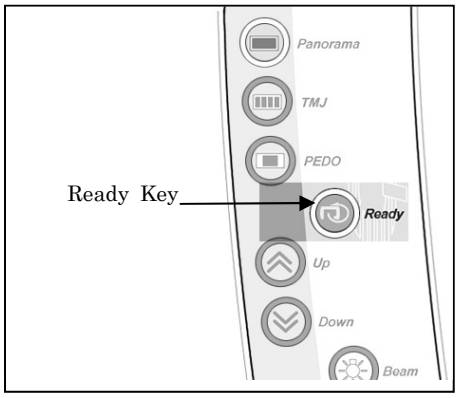
(4) Slide the Chin Rest into its holder.
Press the adjustment dial to free it, open up the head stabilizer and have the patient take his position.



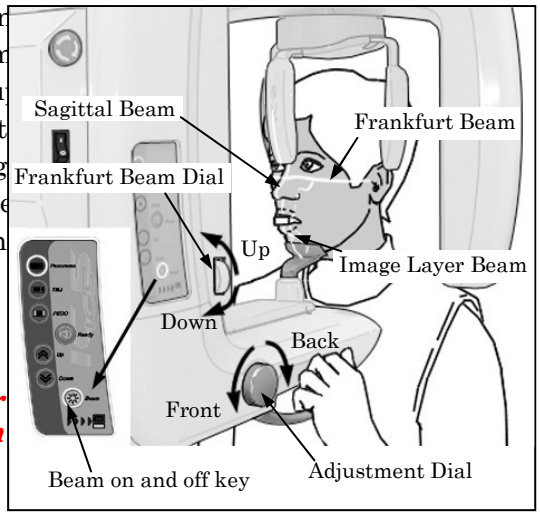
(5) Have the patient put his chin on the chin rest and lightly grip the patient handles. Use the Up or Down key to adjust the height of the chin rest. Have the patient pull his chin in and stand as straight as possible. Observe the patient from the rear to make sure he is standing straight.



(6) Press the Ready key to move the arm into its start position.
The Ready lamp will light up green to show that the unit is ready to make an exposure.



(7) Press the Beam On and Off key to turn the beams on. Line up the patient's sagital plane with the sagital beam. Turn the dial for the frankfurt plane beam to line it up with the patient's ear orifice. Turn the adjustment dial to move it backwards or forwards and line up the image layer beam with the distal edge of the upper left canine. Press the adjustment dial to lock it in place. Close the head stabilizer.



⚠ **WARNING**

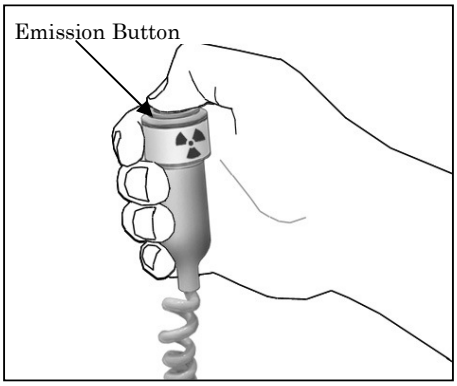
- ***A Class 2 laser is used for positioning beams. The beams are lasers that could injure the eyes; never look directly into them or allow them to strike anyone in the eye.***

⚠ **NOTE**

- ***The beams turn off automatically after 60 seconds except during an exposure. After an exposure, the beams go out after the arm rotates to the patient egress position and stops.***

* It may not be possible to release the chin rest when the patient has his chin resting on it even after pressing the dial. In this case, push the chin rest slightly towards the patient.

(8) Check that the green Ready lamp is on. Pick up the handswitch and hold down the emission button. The arm will start to rotate and X-rays will be emitted. The yellow Emission lamp on the control box will light up and an audible signal will sound.



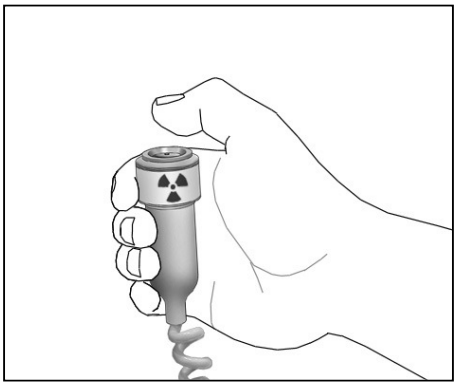
⚠ WARNING

- ***Tell the patient not to move during X-ray emission or while the audible signal is sounding; other wise, the arm might strike the patient or the exposure might be ruined.***
- ***Leave the X-ray booth before pressing the emission button.***
- ***In an emergency release the emission button to stop the arm and X-ray emission. Or press the emergency switch.***

⚠ NOTE

- ***Continue to hold the emission button down until the exposure is finished. Otherwise, the exposure will not be completed.***

* If the exposure is interrupted, press the Ready key to return the arm to its start position and then repeat the exposure.



(9) When the exposure is completed, the Ready lamp will change to orange and flash on and off, the Emission lamp will go out, and the audible signal will stop. The arm will then rotate to the patient egress position. Release the Emission button and hang the handswitch up on the control box.

⚠ NOTE

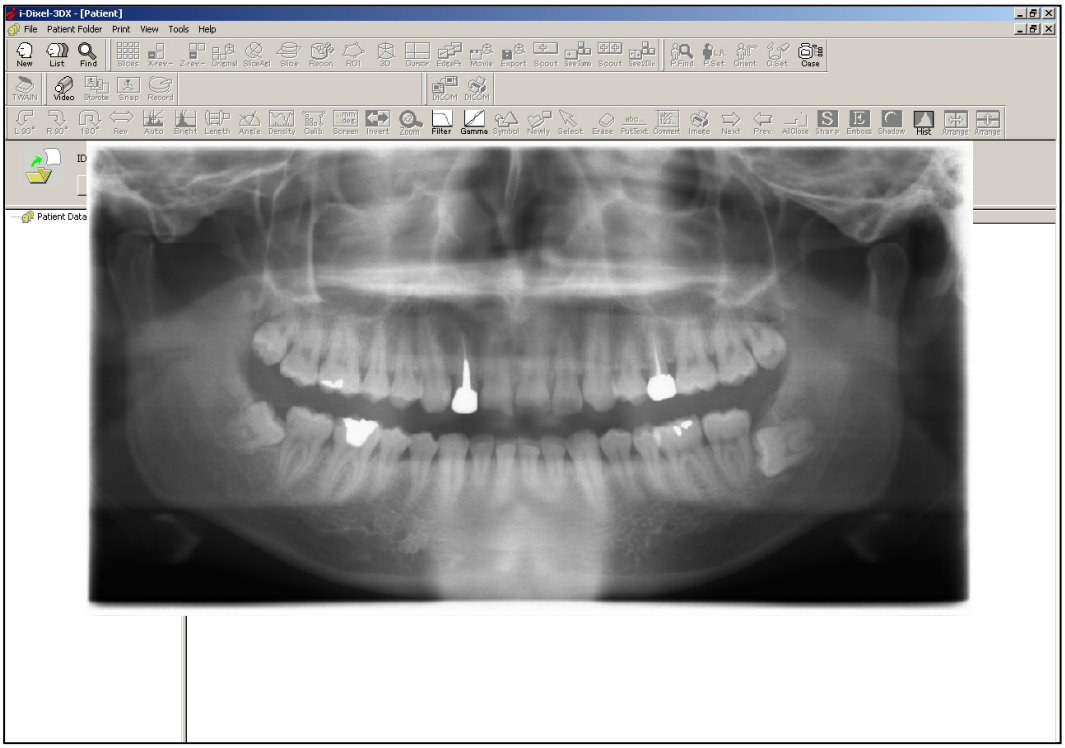
- ***Never turn off the main switch while data is being transmitted. This will cause the image to be lost and the computer to freeze. During data transmission, the Data Transmission LEDs on the operation panel and the Ready lamp on the control panel flash on and off.***

* Do not try to make another exposure before the image is displayed on the computer monitor.

* After the exposure is completed, the X-ray image will be display on the computer's monitor.

⚠ NOTE

- ***If the image transfer stops before the image is shown on the PC display, leave the Veraview IC-5 unit on and check the LAN connection. The last image is possibly retrieved if the LAN connection can be re-established properly before turning off the unit.***



Patient Egress

Release the head stabilizer and carefully guide the patient away from the X-ray unit.

* Throw away the used mouthpiece.

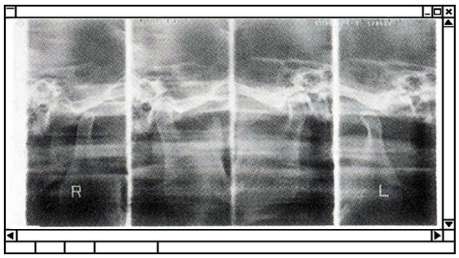
⚠ WARNING

- ***Make sure the patient is well away from the X-ray unit before pressing the Ready key.***
- ***To stop the arm in an emergency when it is returning to its start position, press the Ready key on the operation panel, the emission button or the emergency switch.***

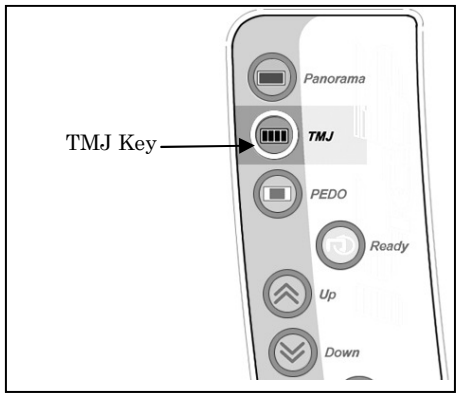
TMJ Exposure [Patient Positioning and Exposure Procedure]

This makes four separate images, one each for the left and right sides with the mouth open and closed.

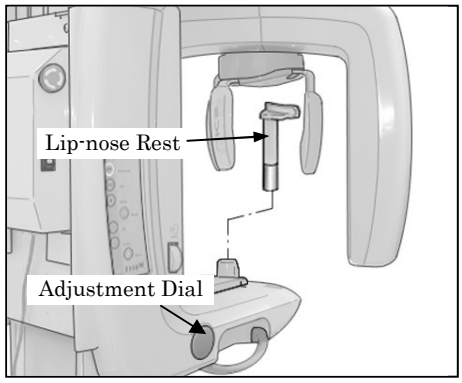
The entire procedure requires two rotations of the arm.



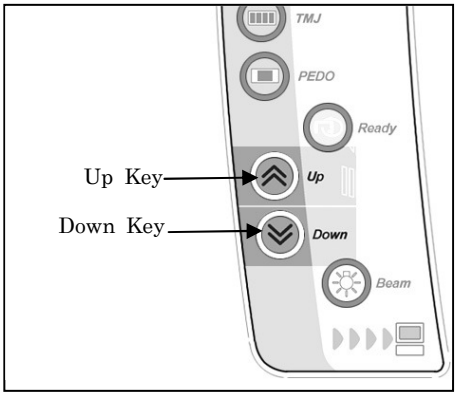
1. Press the TMJ key on the operation panel.



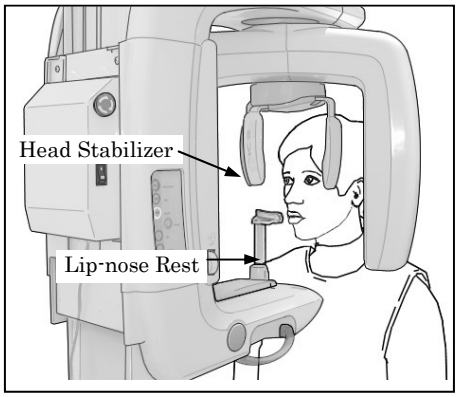
2. Slide the lip-nose into its holder.
   Press the adjustment dial to free it.



3. Use the Up and Down keys to adjust the height of the patient frame to the patient's height.



4. Put an X-ray protection apron on the patient, have him get into position and loosely set the head stabilizer.



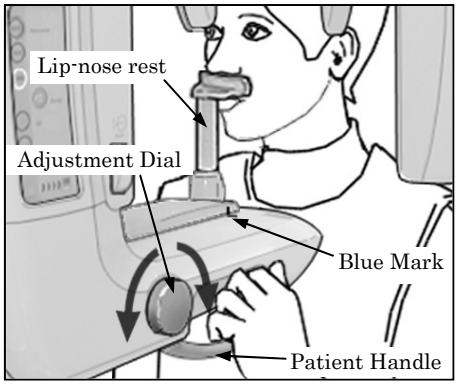
⚠ WARNING

- ***The patient must wear an X-ray protection apron.***

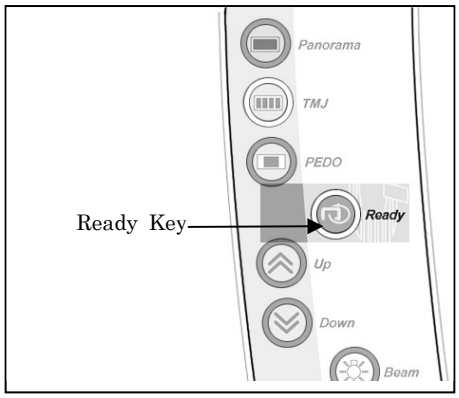
⚠ NOTE

- ***Have the patient remove glasses, earrings or other objects that could spoil the X-ray.***

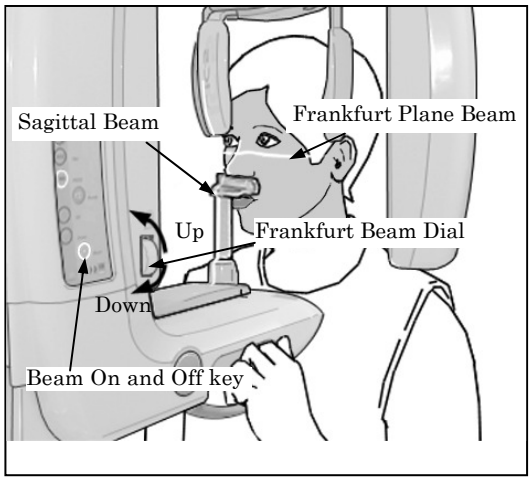
5. Turn the adjustment dial to move the lip-nose rest backwards or forwards until it is lined up with the blue mark; then press the adjustment dial to lock it in place. Have the patient put his lip against the lip-nose rest and lightly grip the patient handles. Use the Up or Down key to adjust the height of the lip-nose positioner. Have the patient pull his chin in and stand as straight as possible. Observe the patient from the rear to make sure he is standing straight.



6. Press the Ready key to move the arm into its start position.



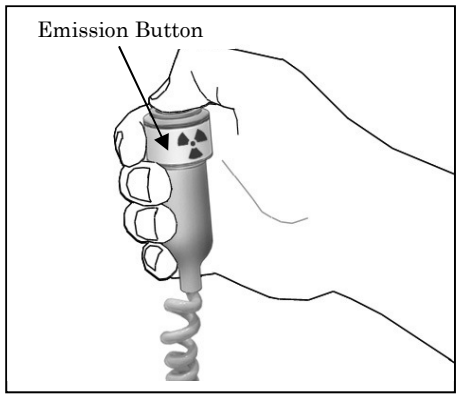
7. Have the patient close his mouth. Press the Beam On and Off key to turn the beams on. Line up the patient's sagital plane with the sagital beam. Turn the dial for the eye-ear plane beam to line it up with the patient's ear orifice. Close the head stabilizer.
   * The image layer beam does not light up.



⚠ WARNING

- ***A Class 2 laser is used for positioning beams. The beams are lasers that could injure the eyes; never look directly into them or allow them to strike anyone in the eye.***

8. Check that the green Ready lamp is on. Pick up the handswitch and hold down the emission button. The arm will start to rotate and X-rays will be emitted to expose the left and right sides. X-rays will be emitted twice before the arm stops. During emission the yellow Emission lamp on the control box will light up and an audible signal will sound.

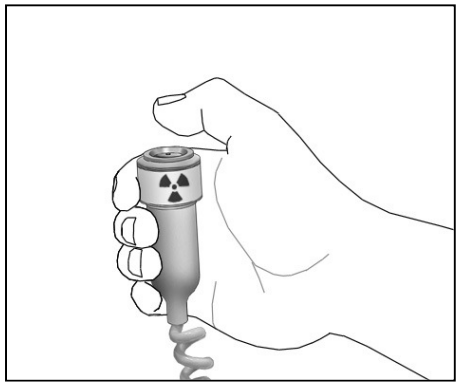


⚠ WARNING

- ***Tell the patient not to move during X-ray emission or while the audible signal is sounding; other wise, the arm might strike the patient or the exposure might be ruined.***
- ***Leave the X-ray booth before pressing the emission button.***
- ***In an emergency release the emission button to stop the arm and X-ray emission. Or press the emergency switch.***

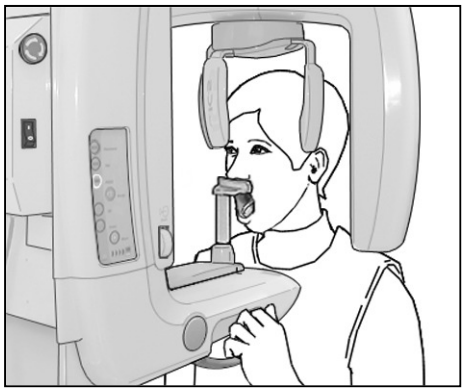
⚠ NOTE

- ***Continue to hold the emission button down until the exposure is finished. Otherwise, the exposure will not be completed.***

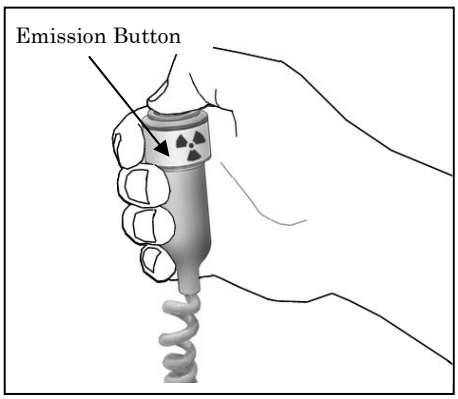


9. Continue to hold down the emission button until the arm reaches its final position and stops.

10. Press the Ready key or press the emission button once to set the arm for the next stage. Have the patient open his mouth.



11. Check that the green Ready lamp is on. Pick up the handswitch and hold down the emission button. The arm will start to rotate and X-rays will be emitted to expose the left and right sides. X-rays will be emitted twice before the arm stops. During emission the yellow Emission lamp on the control box will light up and an audible signal will sound.

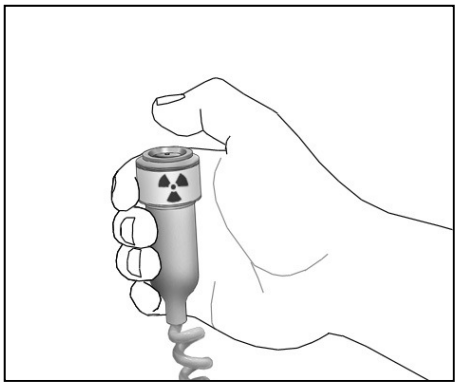


⚠ WARNING

- ***Tell the patient not to move during X-ray emission or while the audible signal is sounding; other wise, the arm might strike the patient or the exposure might be ruined.***
- ***Leave the X-ray booth before pressing the emission button.***
- ***In an emergency release the emission button to stop the arm and X-ray emission. Or press the emergency switch.***

⚠ NOTE

- ***Continue to hold the emission button down until the exposure is finished. Otherwise, the exposure will not be completed.***



12. When the entire exposure series is completed, the Ready lamp will change to orange and flash on and off, the Emission lamp will go out, and the audible signal will stop. The arm will then rotate to the patient egress position. Release the emission button and hang the handswitch up on the control box.

⚠ NOTE

- ***Never turn off the main switch while data is being transmitted. This will cause the image to be lost and the computer to freeze. During data transmission, the Data Transmission LEDs on the operation panel and the Ready lamp on the control panel flash on and off.***

* Do not try to make another exposure before the image is displayed on the computer monitor.

* After the exposure is completed, the X-ray image will be display on the computer's monitor.

⚠ NOTE

- ***If the image transfer stops before the image is shown on the PC display, leave the Veraview IC-5 unit on and check the LAN connection. The last image is possibly retrieved if the LAN connection can be re-established properly before turning off the unit.***

* **It takes longer to read-in an image if an image window is already open. Also, if a Digora is connected, it will take longer to read-in the image if the Digora is not turned on.**

* Density compensation is automatically applied to digital images, but in cases where the image is unusually dark, this can result in a whitish or milky image.

* Seam visible in enlarged images
This seam is not visible in the image as it appears at first, but if the image is enlarged, a seam appears in the middle. This is where the two CCD sensors are joined.

Patient Egress

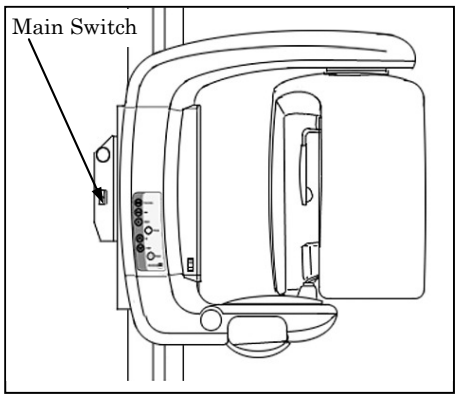
Release the head stabilizer and carefully guide the patient away from the X-ray unit.

⚠ WARNING

- ***Make sure the patient is well away from the X-ray unit before pressing the Ready key.***
- ***To stop the arm in an emergency when it is returning to its start position, press the Ready key on the operation panel, the emission button or the emergency switch.***

6. After Use

Turn the Main Switch off

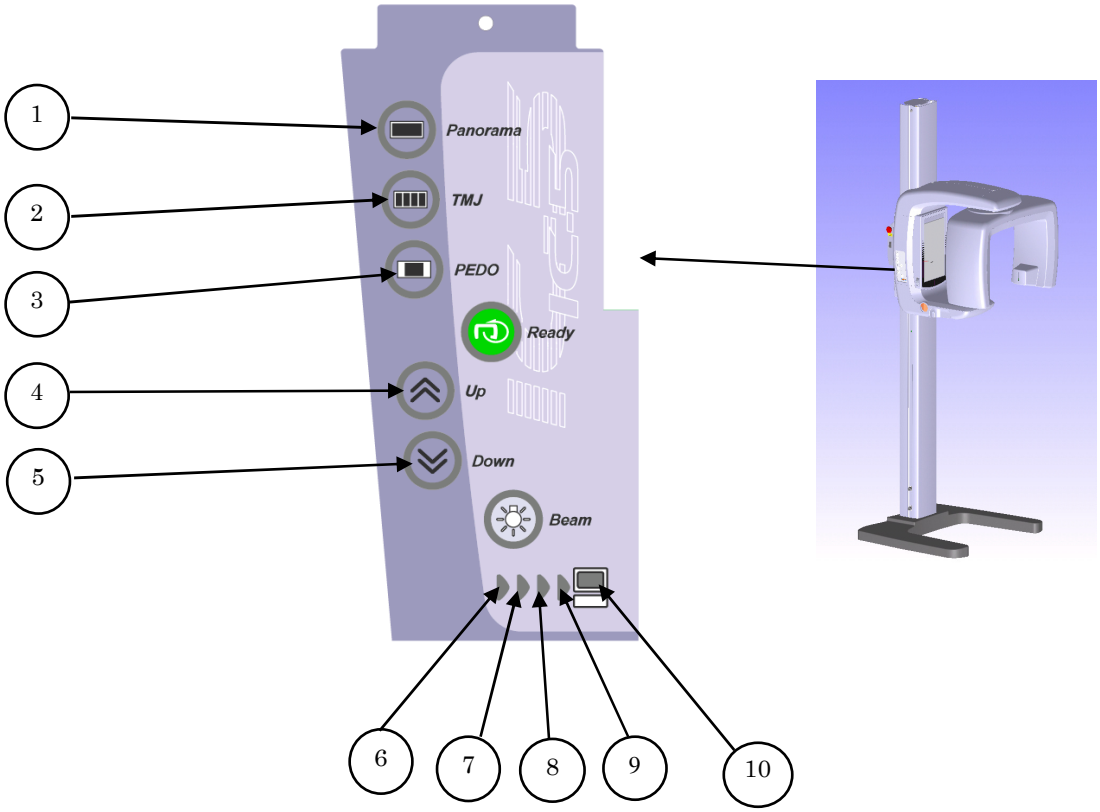


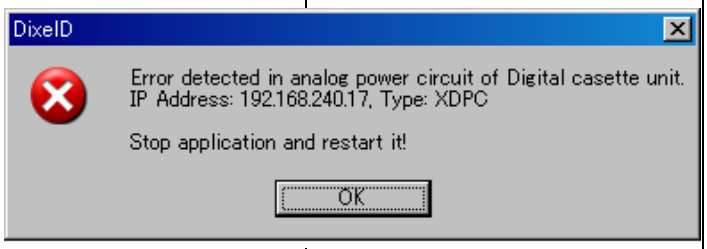
Press the bottom of the main switch on the support column (the side marked with a circle). The blue Power Lamp on the control box will go out.

⚠ WARNING

- ***Do not fail to turn the unit off after use; this will avoid the risk of electrical leakage or unintended operation.***

Error Message



Error	Indication or Message	Restoration Method	Reference
Current Overlaod for Lift Motor	Operation Keys 4 and 5 blink simultaneously	Press operation key 4 or 5.	Find out if patient was pushing or pulling on the lift.
Arm Motor Malfunction	Operation Keys 1, 2 and 3 blink simultaneously	Press operation key 1, 2 or 3.	Find out if the patient was touching the arm.
Analog power supply failure for digital cassette	Error message appears in computer monitor	Restart DixelD and turn the IC-5 off and back on again.  DixelD Error detected in analog power circuit of Digital casette unit. IP Address: 192.168.240.17, Type: XDPC Stop application and restart it! OK	Check the connection for the interface cable
Transmission Error	Opertion keys 6, 7, 8 and 9 blink simulataneously. Also operation key 10 turns red and blinks.	Restart DixelD and turn the IC-5 off and back on again.	Check the connection for the interface cable
Interlock	Operation Keys 1, 2 and 3 blink simultaneously	Press operation key 1, 2 or 3.	
Excessive current, primary side	Operation Keys 1, 2 and 3 blink simultaneously	Press operation key 1, 2 or 3.	
Excessive feedback for secondary side of tube voltage and current	Operation Keys 1, 2 and 3 blink simultaneously	Press operation key 1, 2 or 3.	
Tube heater drive malfunction	Operation Keys 1, 2 and 3 blink simultaneously	Press operation key 1, 2 or 3.	
Overheated head	Operation Keys 1, 2 and 3 blink simultaneously	Press operation key 1, 2 or 3.	Wait a little while before restoring normal operation
Malfunction of tube voltage feedback line	Operation Keys 1, 2 and 3 blink simultaneously	Press operation key 1, 2 or 3.	
Malfunction of tube current feedback	Operation Keys 1, 2 and 3 blink simultaneously	Press operation key 1, 2 or 3.	
Exposure timing malfunction	Operation Keys 1, 2 and 3 blink simultaneously	Press operation key 1, 2 or 3.	
Overheating of FET on Board B	Operation Keys 1, 2 and 3 blink simultaneously	Press operation key 1, 2 or 3.	Wait a little while before restoring normal operation

Contact your local dealer if the unit cannot be restored to normal operating condition using the above porcedures.

7. Regular maintenance

(1) Cleaning

Between patients, disinfect the Head Stabilizers, the Bite Block and Plate, the Chin Rest, the Lip-nose Rest and the patient handles by wiping them with disinfecting alcohol.

Once a day, wipe the operation panel with disinfecting alcohol.

Grease the wire cables for the lift once every six months.

⚠ WARNING

- ***Always turn off the main switch before disinfecting outer surfaces. Otherwise there is a risk of electrical shock and burns as well as the possibility of accidents due to the accidental pressing of switches or keys.***

⚠ NOTE

- ***Avoid discoloration and other damage to the outer surfaces and the seat; do not use alkaline or acidic cleaning solutions, cresol liquid soap, or other types of chemicals.***
- ***If a chemical solution is accidentally spilled on the outer surface or the seat, use disinfecting ethanol to immediately wipe it off.***

(2) Verification of Automatic Exposure Control

Read the section titled “IC5 DDAE Verification Procedure” (page 41) for the verification method of the automatic exposure control.

8. Inspection

* The user (hospital, medical institute or clinic) is responsible for inspection and maintenance of medical devices.

(1) Regular Inspection

Have the following inspection and maintenance procedures performed. In some countries such as Germany, the law requires an annual inspection which is specified by the manufacturer. We recommend that the following inspections be performed even if not required by law.

The Veraview IC-5 should be inspected for all the items in the following list once every year. The inspection may be performed only by

- the technicians of J. Morita's subsidiaries all over the world.
- technicians employed by authorized J. Morita dealers and specially trained by J. Morita.
- independent technicians specially trained and authorized by J. Morita.

Power Supply and Physical Stability

1. Measure the unit's power supply.
   Use a digital or analog tester to measure the unit's power supply. The result must be rated nominal Voltage ±10%.

2. Check ground connection.
   Visually inspection the ground connection to make sure it is securely and properly connected.

3. Floor and base securing bolts.
   Visually inspect the floor and base securing bolts. Check that the floor is level and make sure the base bolts have not loosened up.

4. Bolt and screw tightness
   Inspect all the bolts and screws on the unit. Make sure that all bolts are in place and properly secured.

5. Internal electrical circuitry
   Inspect all the printed circuit boards and the wiring connecting electrical components and elements. Make sure all wiring and connections are intact.

Panoramic Exposure Inspection

1. X-ray Slit
   Make sure the X-ray beam passes through the secondary slit for the digital cassette.
2. Arm rotation movement
   Press the emission button and make sure the arm rotates properly without abnormal noise or slippage and stops in the specified position. Repeat this test 3 times.
3. Emergency Stop
   Release the emission button when the arm is in the middle of its rotation pattern. The arm must stop when the button is released.
4. Head stabilizer
   Make sure the head stabilizer open and close properly.
5. Chinrest

6. Light Beams
   Check the Mid-sagittal Plane, Frankfurt Plane, and Image Layer Light Beams.
7. Operation panel and control box.
   Check that all the keys on the operation panel work. Make sure the display on the operation panel and the control box all light up properly.

Lift Mechanism

1. Vertical Motion

   Press the up and down keys. Make sure the lift moves smoothly and stops properly. Repeat this 3 times.

2. Wire Cables

   Check the wire cables for broken strands. Make sure the ends are properly secured. Grease the cables once every six months with the grease provided by the manufacturer

(2) Repair

* ATTENTION

1. The J. Morita Mfg. Corp. will not be responsible for accidents, equipment damage, or bodily injury resulting from repairs made by personnel not authorized by the J. Morita Mfg. Corp.
2. The J. Morita Mfg. Corp. will not be responsible for accidents, equipment damage, or bodily injury resulting from any changes, modifications, or alterations of its products.
3. The J. Morita Mfg. Corp. will not be responsible for accidents, equipment damage, or bodily injury resulting from the use of products or equipment made by other manufacturers, except for those procured by the J. Morita Mfg. Corp.
4. The J. Morita Mfg. Corp. will not be responsible for accidents, equipment damage, or bodily injury resulting from maintenance or repairs using parts or components other than those specified by the J. Morita Mfg. Corp. and in their original condition.
5. The J. Morita Mfg. Corp. will not be responsible for accidents, equipment damage, or bodily injury resulting from operating the equipment in ways other than the operating procedures described in this manual or resulting from not following the cautionary remarks and warnings in this manual.
6. The J. Morita Mfg. Corp. will not be responsible for accidents, equipment damage, or bodily injury resulting from workplace conditions and environment or installation conditions such as improper electrical power supply which do not conform to those stated in this manual.
7. The J. Morita Mfg. Corp. will not be responsible for accidents, equipment damage, or bodily injury resulting from fires, earthquakes, floods, lightning, natural disasters, or acts of God.
8. The J. Morita Mfg. Corp. will supply replacement parts and be able to repair the product for a period of 10 years after the manufacture of the product has been discontinued.

*** For all repairs, contact your local dealer or the J. Morita Corp.**

9. Technical Description

Model	XDP1
Type	EX-1, EX-2

Classification

Europian Directive 93/42/EEC	IIb

Safety according to IEC 60601-1, IEC 60601-1-1, IEC 60601-1-2, IEC 60601-1-3, IEC 60601-1-4. IEC 60601-2-7, IEC 60601-2-28 and IEC 60601-1-32 standards. UL60601-1,C-UL.

Protection against electric shock	Class I
Degree of protection	Type B
Protection against ingress of liquids	IPX 0

Disinfection methods:

-Between patients, disinfect the Head Stabilizers, the Bite Block and Plate, the Chin Rest, the Lip-nose Rest and the patient handles by wiping them with disinfecting alcohol.
-Once a day, wipe the operation panel with disinfecting alcohol.

Mode of operation	Intermittent

Applied part with no conductive connection to patient.

Intended use

The Veraview IC-5 is an extraoral source X-ray unit that is used for dental radiographic examination and diagnosis of teeth, jaw, oral structure and TM-joints by exposing an X-ray image receptor to ionizing radiation.

Essential Performance

Performance necessary to achieve freedom from unacceptable RISK.

- No unexpected X-ray irradiation
- No unexpected movement of the equipment

X-ray Tube

Model	D-055SB
Focal Spot	0.5 mm
Target Angle	12.5º
Target Material	Tungsten
Inherent Filtration	At least 1.0mmAl
Muximuim Input Energy	635w (1 Sec.)
Curcuit(Center-Grounded)	Constant Potential(DC)
Maximum Filament Current	3.0A
Filament Voltage	2.8 - 3.6V (At max. Filament Current 3.0A)
Filament Frequency Limits	0 – 20 kHz

Generrator/X-ray Head Assembly

Operating Tube Potential	60 ~ 70kV (Automatic control) (accuracy of programmed setting values ± 10 %)
Operating Tube Current	1 mA to 7.5mA (Automatic control) (accuracy of programmed setting values ± 10 %)
Maximum Output Power	525W (70kV, 7.5mA)
Filtration	Inherent filtration minimum 2.5 mm Al at 70kV
Beam Quality	HVL minimum 1.5 mm Al at 70kV
Primary Protective Shielding	Minimum 0.5 mm Pb or equivalent
Outer Shell Temperature	45ºC maximum
Duty Cycle	1:30
Filament	Preheated
Rectification	Direct Current
Cooling	Oil cooling
Maximum Heat Unit of X-ray Head Assembly	116kJ (1 HU=1.35 Joule, 1J=1Ws)
Maximum continues input	17.5w
Leakage Radiation	max. 1.0mGy/h at 1m
Weight of X-ray Head Assembly	Approximately 6 kg
Minimum mAs	4.8 mAs

Auto Exposure

Maximum possible excursion	60 - 70 kV 1 – 7.5mA

Power requirements

Rated nominal voltage	EX-1 AC100/110/115/120V, 50/60Hz single phase (120V only for the US and Canada) EX-2 AC 220/230/240V, 50/60 Hz single phase
Fuse at the distribution panel	EX-1 20A, slow EX-2 16A, slow
Power consumption	Max. 0.85 kVA
Rated input amperes	Max.9.4/8.6/8.2/7.9/4.3/4.1/3.9A (100/110/115/120/220/230/240Vwith operation) 0.5A(stand by)
Power line resistance	EX-1 max. 0.5Ohm EX-2 max. 1 Ohm
Line voltage regulation	3%
Technique factor for the Maximum input amperes	70kV 7.5mA

Mechanical parameters

SID	520mm (±20mm)
SSD	min. 150mm
Magnification	1.234 to 1.3
Weight	
Main Unit	Approximately 110 kg Boxed
Control Box	Approximately 0.33 kg Boxed
Outer Dimensions	
Main Unit	W 890 x D 970 x H 2,350mm
	W 890 x D 970 x H 2,180mm (Option)
Control Box	W 140 x D 50 x H 120mm
Vertical Height of Focal Spot	1,045 ~ 1,830 mm ±20 mm
	960 ~ 1,660 mm ±20 mm (Option)
Positioning Beams	3 provided (Sagittal,Eye-ear,Image Layer)
	Class 2 Laser
	(based on IEC60825-1,21CFR PART 1040.10)
Attenuation equivalent of	
Head Stabilizer, Bite-Block and Chin Rest	less than 1.7 mm Al

Exposure Time and Accuracy

Super High speed Radiographic	Panoramic:	5.5 seconds
Mode (Standard resolution)	Pedodontic:	4.8 seconds
	TMJ Quadruple:	3.9 seconds
High speed Radiographic Mode	Panoramic:	8.0 seconds
(High resolution)	Pedodontic:	7.0 seconds
	TMJ Quadruple:	5.7 seconds

Accuracy	±10%
Emission Switch	Dead Man Type

Leakage technique factors

Panoramic	70kV, 900mAs/h (70kV, 7.5mA, duty cycle 1:30, for example 5.5sec. exposure per 2 minutes 40 seconds cool-down period)

Measurement bases

The kV is: Actual X-radiation is monitored by Non Invasive Evaluator of Radiation Output.
The mA is measured by monitoring current in the HT return line, which equals the tube current.
Exposure time: Starting point of exposure is determined at the time when the kV value reaches to 75% of average kV value. Termination of exposure is determined at the time when the kV value decreases to 75% of average kV value.

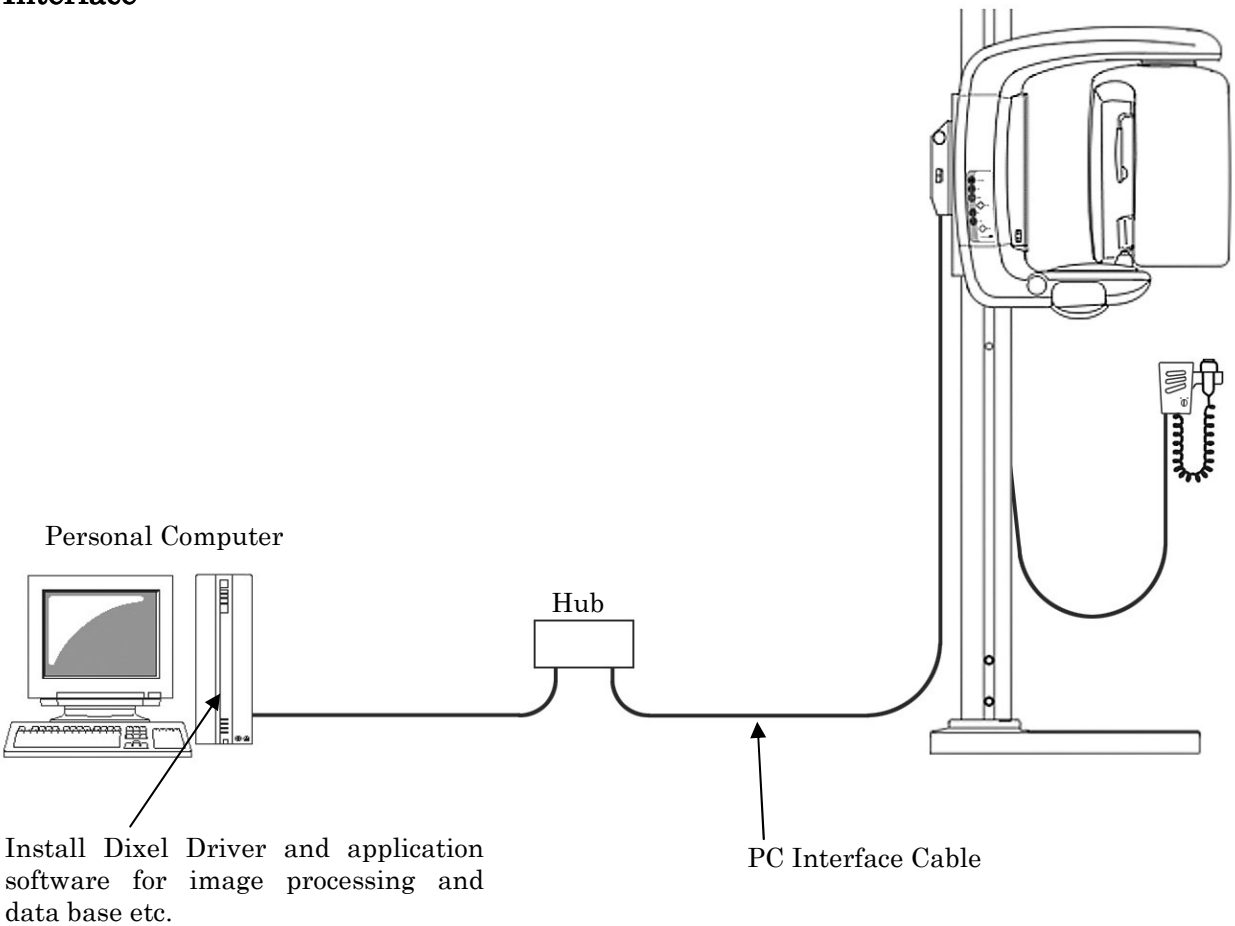
Collimator

1 fixed collimator (Panoramic slit)

Digital Radiographic

Sensor:	Full flame transfer type 2 dimension CCD image sensor
Active sensor surface:	147.5 x 6.1 mm
Pixel size of the sensor:	0.048mm
Pixel Construction:	3,072 x 128 pixel
Resulting image format:	max. 288 x 147.5 mm
Detail recognition: (Resolution)	0.192 mm pixel size for Super high speed radiographic mode 0.144 mm pixel size for High speed radiographic mode
Imaging method:	Time Delay Integration

Interface


Personal Computer
Hub
Install Dixel Driver and application software for image processing and data base etc.
PC Interface Cable

SIP/SOP statement

Cable connection:	Unshielded twisted pair cable with RJ-45 plug connections, max. length 2 m.

Requirements for Computers and their Peripheral Devices

1. The Veraview IC-5 has been tested and found to comply with the limits for medical devices to the IEC 60601-1-2 for electro magnetic compatibility. These limits are designed to provide reasonable protection against harmful interference in a typical medical installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to other devices in the vicinity. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to other devices, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

   - Reorient or relocate the receiving device.
   - Increase the separation between the equipment.
   - Connect the equipment into an outlet on a circuit different from that to which the other device(s) are connected.
   - Consult the nearest J. Morita office, its representative or its dealer for help.

2. The following equipment connected to the analog and digital interfaces must be certified according to the respective IEC standards (i.e. IEC 60950-1 for data processing equipment and IEC 60601-1 for medical equipment). Furthermore all configurations shall comply with the system standard IEC 60601-1-1. Everybody who connects additional equipment to the signal input part or signal output part configures a medical system, and is therefore responsible that the system complies with the requirements of IEC 60601-1-1. If in doubt, consult the nearest J. Morita office, its representative or its dealer for help.

*** Some of the following devices may cause some technical problems with the Veraview IC-5. Ask your nearest J. Morita office for proper selection of equipment and connections.**

⚠ NOTE

- ***The following devices may not be located in the X-ray protection area (see page4) or the patient vicinity except the Hub if the Hub is conformed with IEC60950-1 and enclosure leakage current is conformed with IEC 60601-1.***

* The patient vicinity is the area where intentional or unintentional contact can occur between a patient or a patient's attendant and the above devices, or between a patient or a patient's attendant and other persons touching the above devices. This area extends 1.83 m beyond the perimeter of the bed (examination table, dental chair, treatment booth, and the like) in its intended location, and vertically 2.29 m above the floor.

Other system requirements

Hardware

Windows based Personal Computer (Minimum specifications)

Operating system:	Microsoft Windows NT 4.0 with Service Pack 4. Microsoft Windows 2000 with Service Pack 2. Microsoft Windows XP with Service Pack 1.
CPU:	Intel Pentium 350MHz.
Memory:	128MB for Windows NT 4.0, or 256MB for Windows 2000, Windows XP
Video board:	resolution of 1024 x 768 and color depth of 24bit
Network protocol:	TCP/IP with static IP address.
Network interface:	Universal purpose 10BASE-T Ethernet network interface board
Board.	
Port occupied:	69/udp, 2102/tcp, 2102/tcp
Others:	Network board, CD-ROM drive, Floppy disk drive.
Display:	17 inch CRT or 14 inch TFT LCD 16,000,000 colors
Standard:	IEC60950-1 or IEC60601-1 EMC regulation Related UL standard (addition to USA) Related C-UL standard (addition to Canada) Local regulations

Hub

10 Base-T, 100 Base-TX

Standard:	IEC60950-1 if it is used in non patient vicinity IEC60601-1 or IEC60950-1 with enclosure leakage current enclosure leakage current is conformed with IEC 60601-1. EMC regulation Related UL standard (addition to USA) Related C-UL standard (addition to Canada) Local regulations

Recommended Hub, for example

Manufacturer:	Bay Networks
Type:	Bay Stack 350T

Storage Device

	Patient data can be saved safely. MO or CD-R disk drive is recommended.
Standard:	IEC60950-1 if it is used in non patient vicinity EMC regulation Related UL standard (addition to USA) Related C-UL standard (addition to Canada) Local regulations

Other equipment connected to PC

Standard:	IEC60950-1 if it is used in non patient vicinity EMC regulation Related UL standard (addition to USA) Related C-UL standard (addition to Canada) Local regulations

Application Software

Application software for image processing or data base is provided by J. Morita.
It shall be used with above Windows base computer specifications.
It conforms to 93/42/EEC (in EU), IEC6060-1-4 and 21 CFR (in USA), Medicaldevice regulations (in Canada).
If another application software is used, it must conform to the above regulations and standards, and must match the Dixel driver from J. Morita Mfg. Corp.
Ask your nearest J. Morita Office for the appropriate interface.

Environmental data

Operating Conditions

Ambient temperature range	+10° ~ +35°C
Relative humidity	20 to 90% no condensation
Atmospheric pressure range	70 ~ 106 kPa

Transport and Storage Conditions

Ambient temperature range	-10° ~ +50°C
Relative humidity	5 ~ 90%
Atmospheric pressure range	50 ~ 106 kPa

Original language

English

Working Life

The working-life of this unit is 10 years from the date of shipment provided it is regularly and properly inspected and maintained.

Disposal

The package should be recycled. Metal parts of the equipment are disposed as scrap metal. Synthetic materials, electrical components, and printed circuit boards are disposed as electrical scrap. Material must be disposed according to the relevant national legal regulations. Consult specialized disposal companies for this purpose. Please inquire of the local city/community administrations concerning local disposal companies.

This symbol is affixed to fulfill the requirements of EU Directive 2002/92/ED Article 11.
This equipment cannot be disposed of as unsorted municipal waste within the European Union. Follow local regulations for disposal.

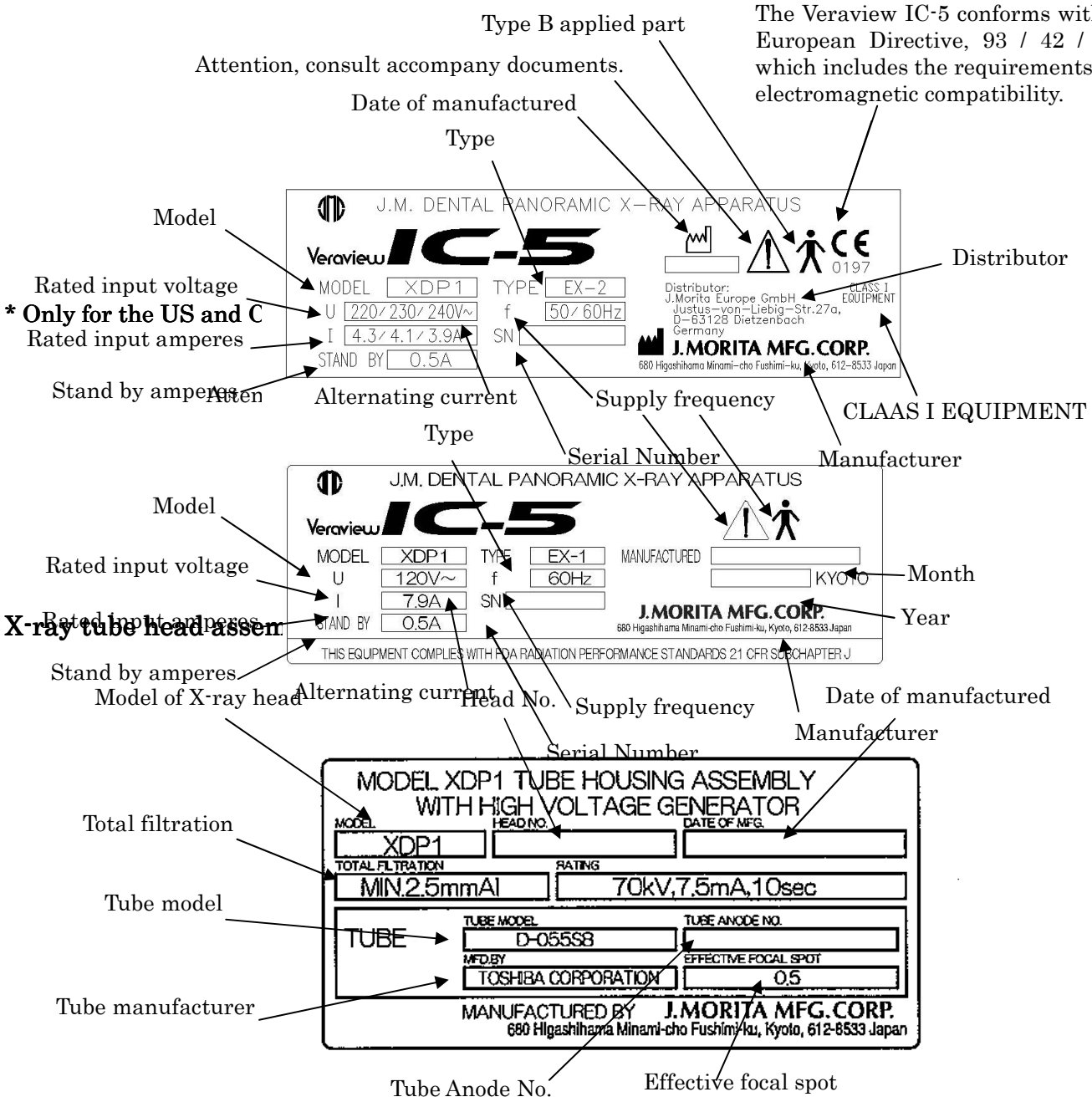
Service

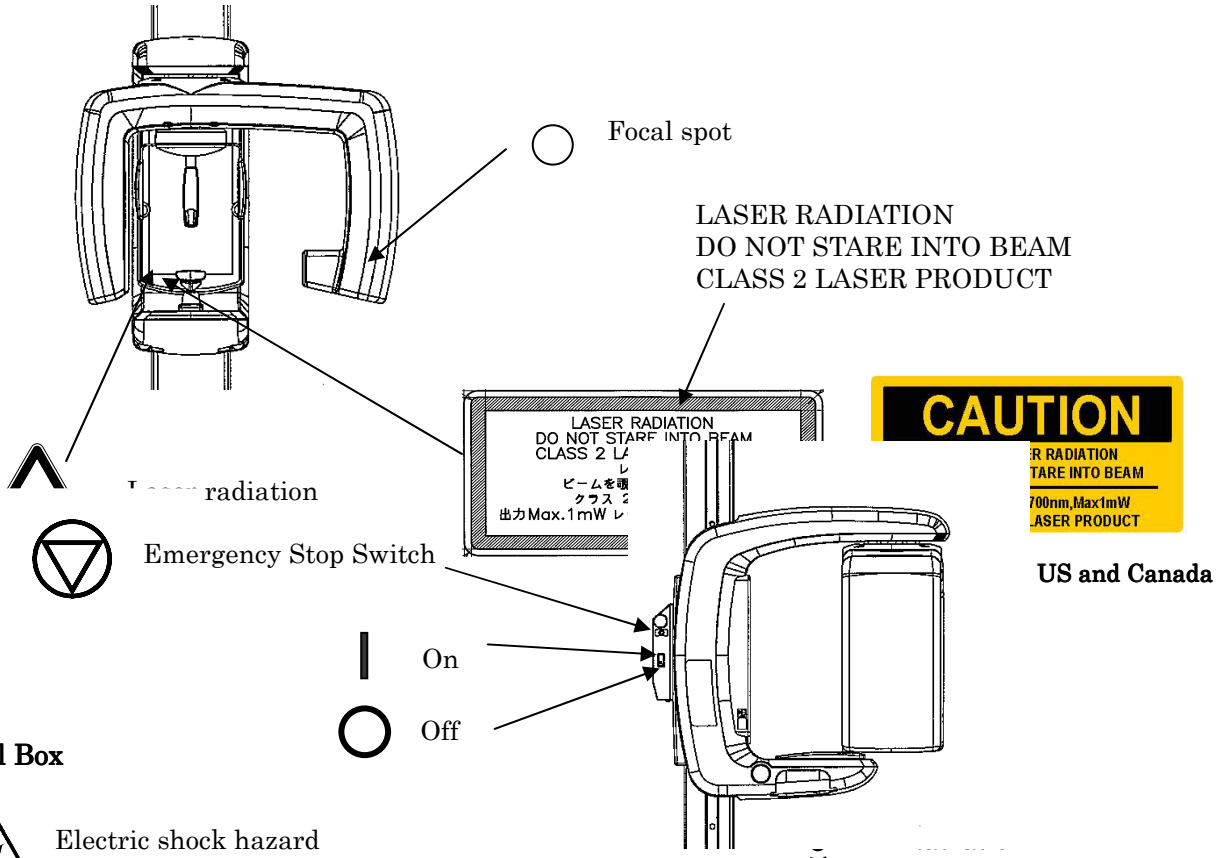
J. Morita products may be repaired and serviced by

- the technicians of J. Morita's subsidiaries all over the world.
- technicians employed by authorized J. Morita dealers and specially trained by J. Morita.
- independent technicians specially trained and authorized by J. Morita.

Meaning of the Symbols

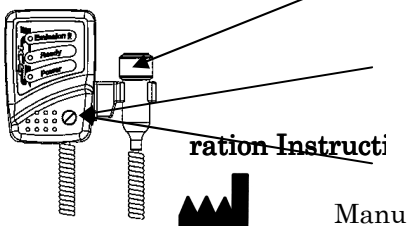
Identificatipon label * Label contents differ depending on model.





Control Box

Electric shock hazard



On (Option Keyswitch)

Off (Option Keyswitch)

Mouthpiece Package

ration Instructi

Do not reuse

Manufacturer

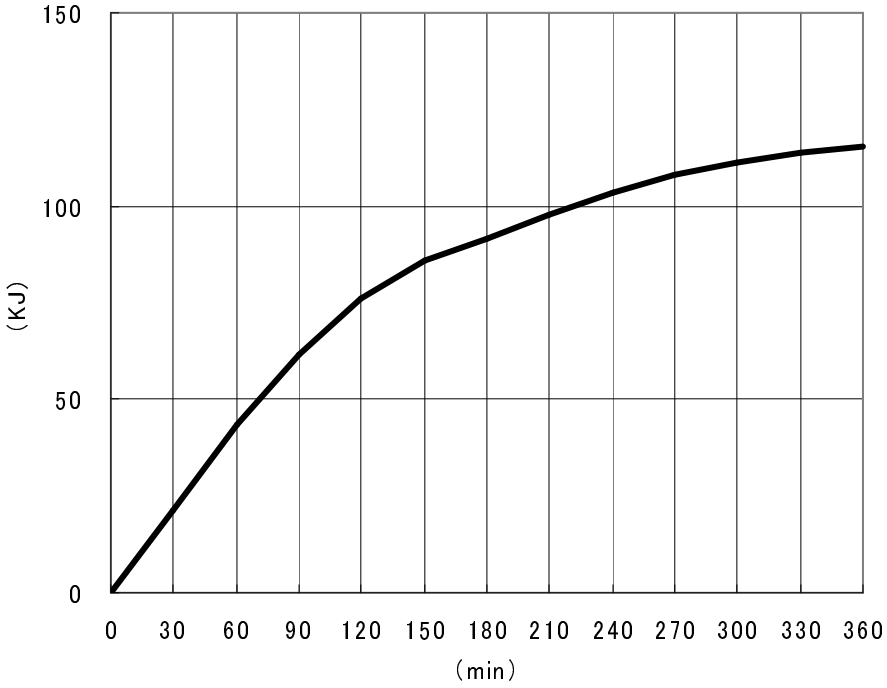
Package

Temperature Limitation

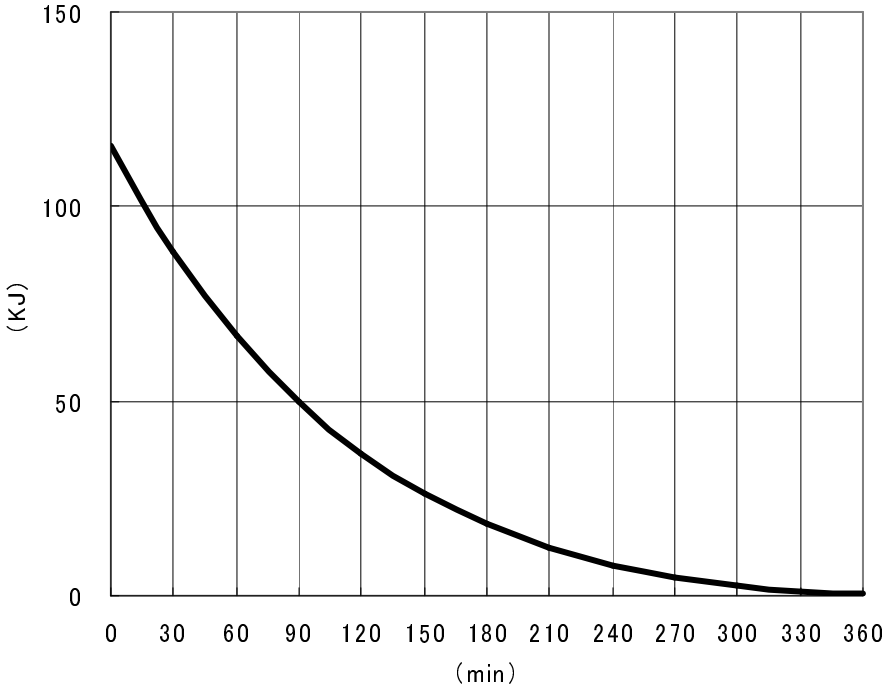
EC REP

Authorised representative in the European Community

Tube housing assembly heating curve



Tube housing assembly cooling curve



(1J=1Ws)

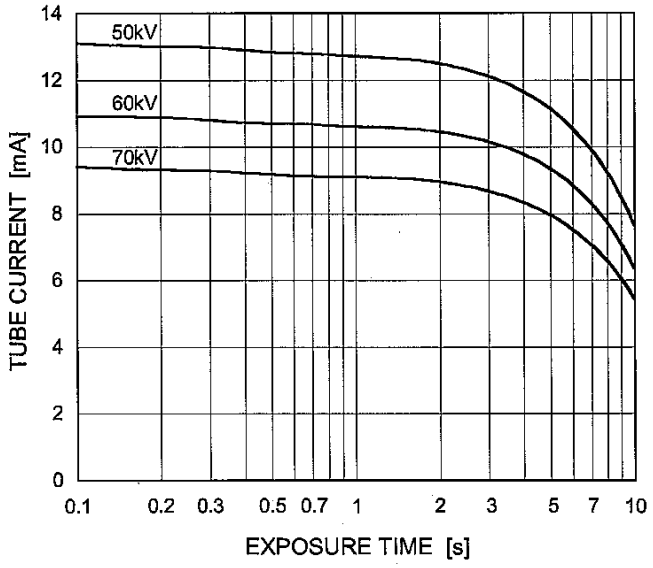
Tube rating chart

D-055SB

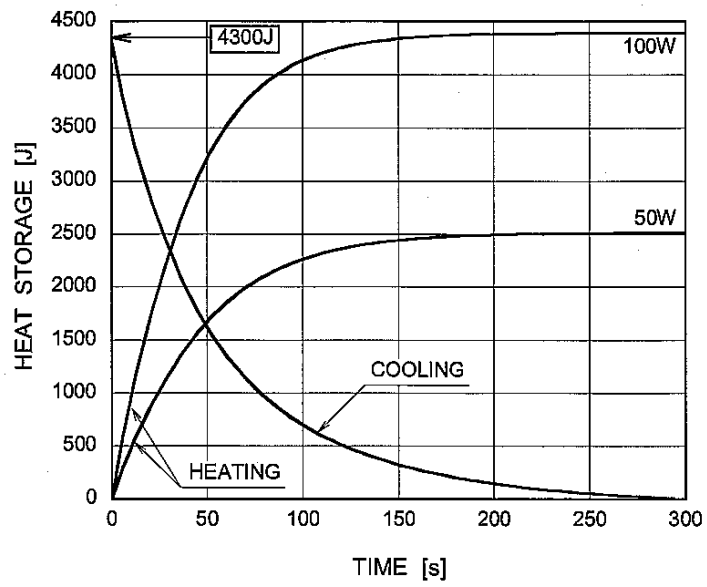
Maximum Rating Charts

(Absolute maximum rating charts)

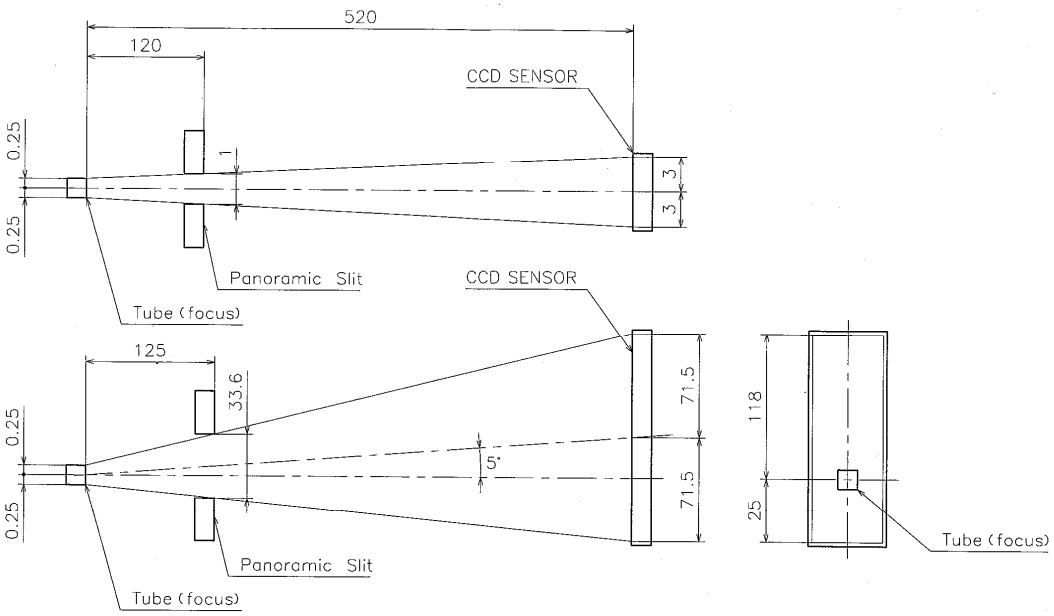
Focus Spot : 0.5 mm



Anode Thermal Characteristics



Reference axis



X-ray Dosage Data

The IC-5 uses auto exposure to deliver the optimum X-ray dosage for the patient.

The following image information is recorded for each exposure.

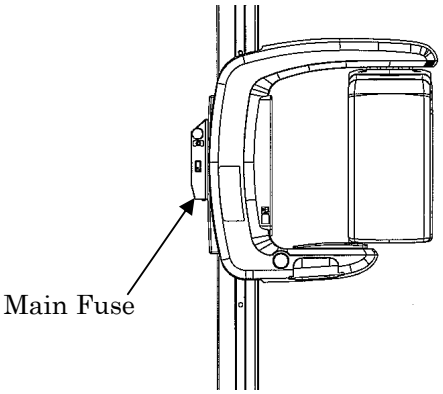
- Dose-Area-Product(DAP)(mGy * cm^2)
- tube voltage average(kV)
- tube current average(mA)

Refer to the application's software manual as the displayed image information differs according to the application software.

The Dose-Area-Product (DAP) (mGy * cm^2) may not be displayed depending on the application software.

The displayed Dose-Area-Product refers to the tube voltage (kV)/current (mA) for each exposure. The Dose-Area-Product is calculated based on typical measurement results from the IC-5.

10. Replacement Parts



	Code No.	Description	Rating	Type	Qu.
A	6350040	Main Fuse (for EX-1)	F15A250V	Fast-acting, High Breaking Capacity	1
B	3810984	Main Fuse (for EX-2)	F6.3A250V	Time Lag, High Breaking Capacity	1

Fuses shall be replaced by qualified person.
Fuse shall be certified according to IEC127 or 241, or manufactured in proportion to IEC127 or 241.

Accessory Parts

Code No.	Description
6270750	Mouth Pieces (100)
6350210	Chin Rest
6350207	Lip-nose Rest
6351000	IC5 3-piece Copper Filter
6351080	Bite-Block
6351081	Bite-Plate
6211120	Bite-Block Covers

IC5 DDAE Verification Procedure

<Content>

1. Introduction
    - 1-1. DDAE Verification
    - 1-2. DDAE Verification Flowchart
    - 1-3. Warnings and Caution

2. Setup
    - 2-1. Equipment Checklist
    - 2-2. Set Test Piece
    - 2-3. Explanation of Test Program
        - 2-3-1. Dxladj
            - 2-3-1-1. Startup
            - 2-3-1-2. Acquire Panorama Image Average
        - 2-3-2. DDAE Verification Tool
            - 2-3-2-1. Startup
            - 2-3-2-2. Window Explanation

3. Verification Procedure

4. Troubleshooting

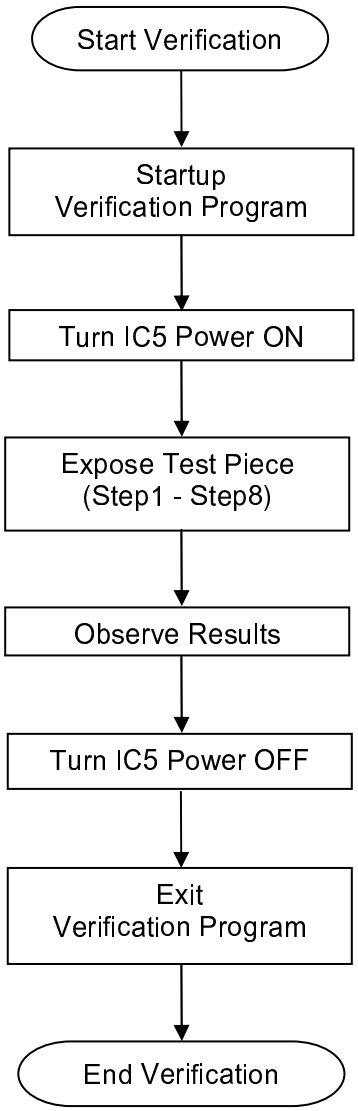
1. Introduction

1-1. DDAE Verification

Procedure to verify that the DDAE operates correctly (The function to ensure the proper X-ray dose according to the object.).

1-2. DDAE Verification Flowchart

Perform the DDAE verification according to the following procedure:



1-3. Warnings and Caution

* If any errors occur during the verification procedure, turn off IC5 immediately and exit the verification program.
  Restart the procedure from "Start Verification".

2. Setup

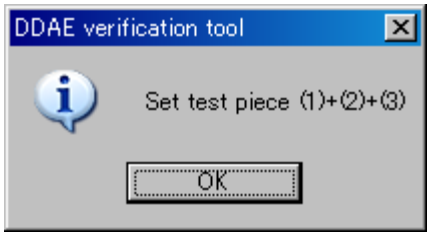
2-1. Equipment Checklist

- CDROM that includes the Verification Program
- Test Piece which is used for the verification test.

2-2. Set Test Piece

Set the test piece as follows when asked by the verification program. The test piece consists of three copper plates :(1),(2),(3).

- If the following dialog is displayed, set test pieces (1), (2), (3).



- If the following message is displayed, set test pieces (1) and (2).

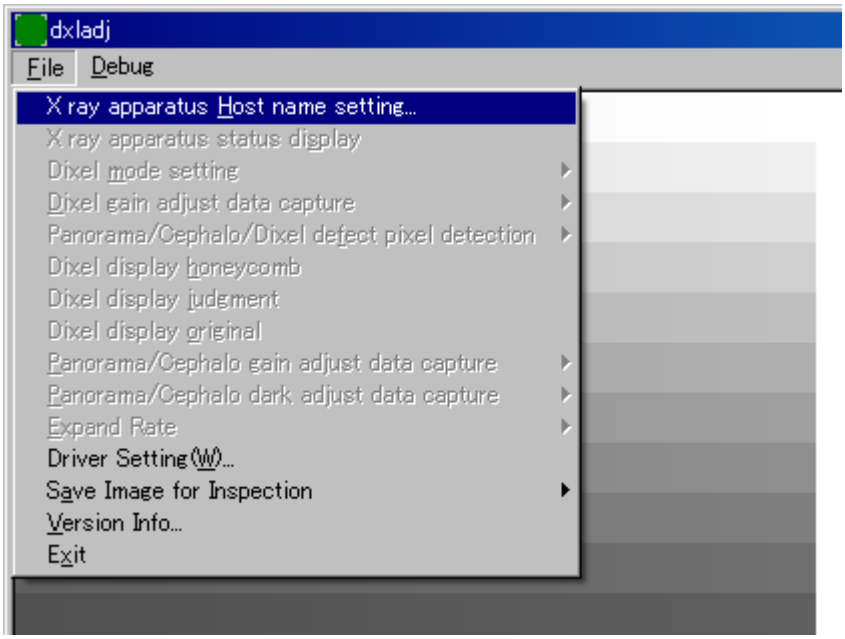
*Notice

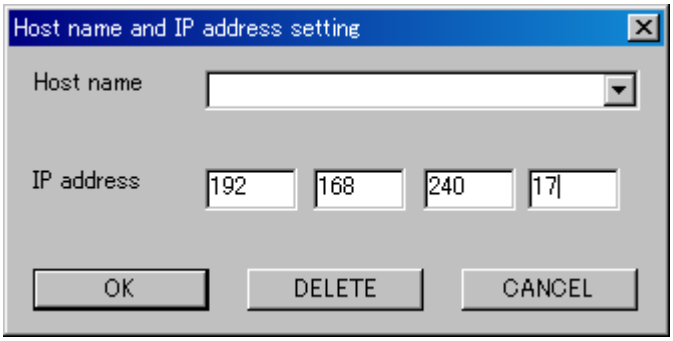
2-3. Explanation of the Test Program

2-3-1. Dxladj

2-3-1-1. Startup

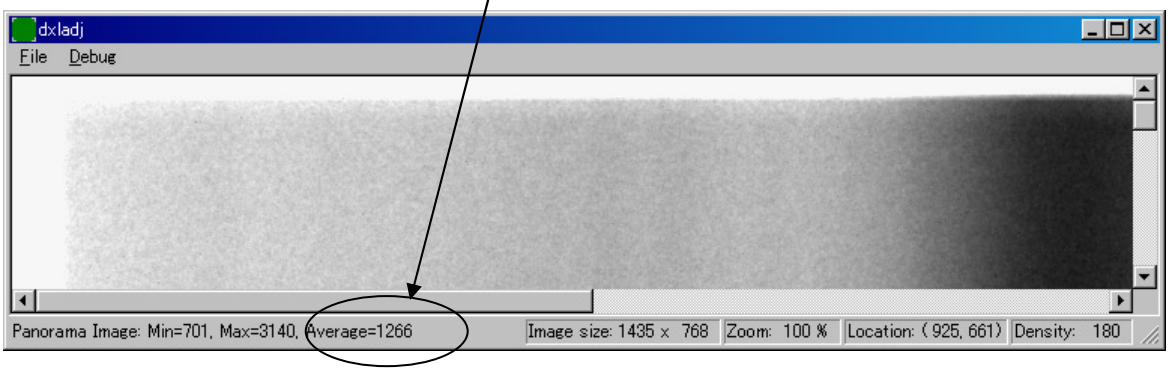
1. Exit the data base application and startup Dxladj.exe.
2. File-->Click the host name setting of the connected X-ray device. Change the IP address to 192.168.240.17.





2-3-1-2. Acquire Panorama Image Average

After the exposure, the "Panorama Image Average" is displayed in the status bar.

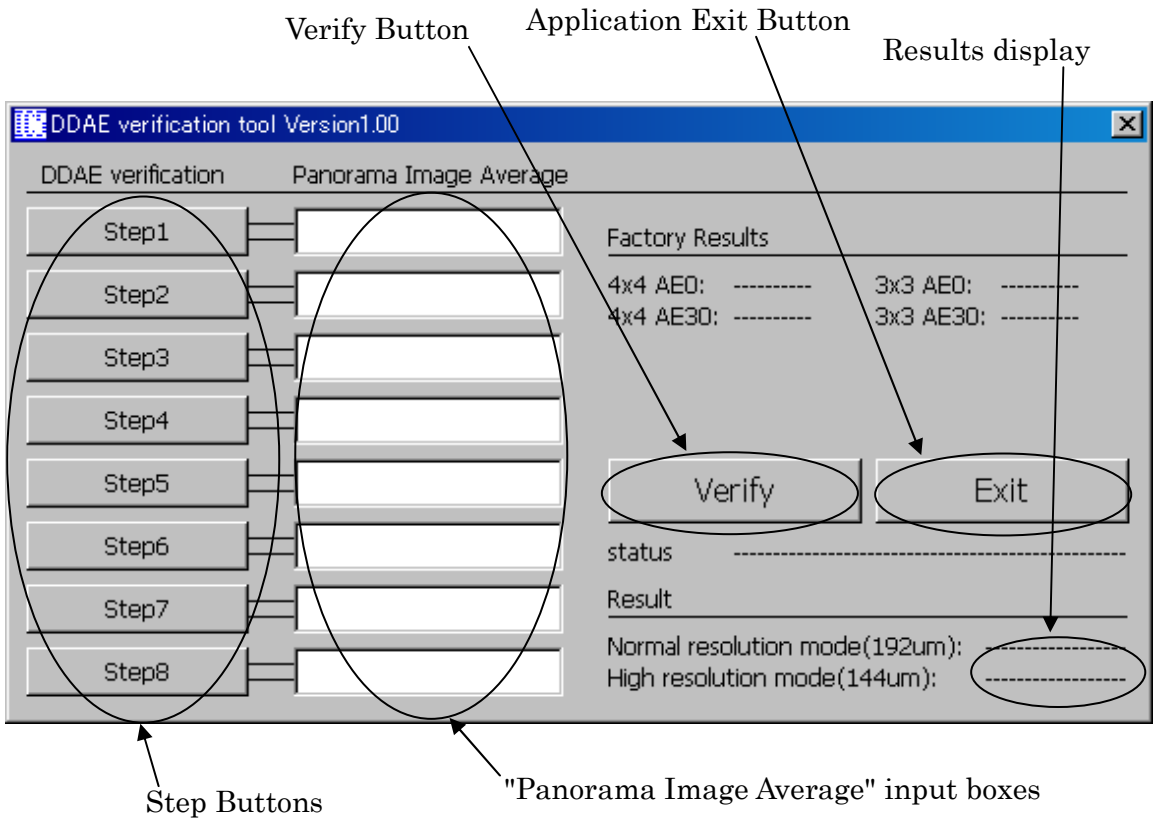


2-3-2. DDAE_Verification_tool

2-3-2-1. Startup

Double-click the "DDAE_Verification_tool.exe" file on the CDROM.

2-3-2-2. Window Explanation



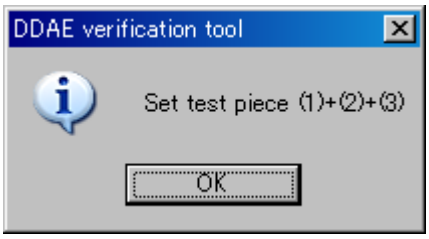
- Step Buttons
  Set the device modes according to the selected step.
- "Panorama Image Average" input boxes
  After the exposure, input the acquired "Panorama Image Average" for the step performed.
- Verify Button
  Performs DDAE verification based on the input parameters.
- Application exit button
  Closes the application.
- Results display.
  Display the results of the DDAE verification.

3. Verification Procedure

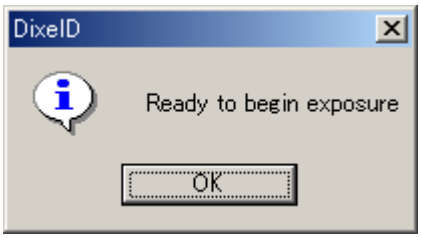
(1) Exit the database application then run the Dxladj program and set the host name.
(2) Start the DDAE Verification Tool.
(3) Turn on IC5.
(4) When the IC5 icon is displayed on the lower right of the screen, set the test piece then expose it by performinging steps 1 through 8 in order.

*IC5 icon

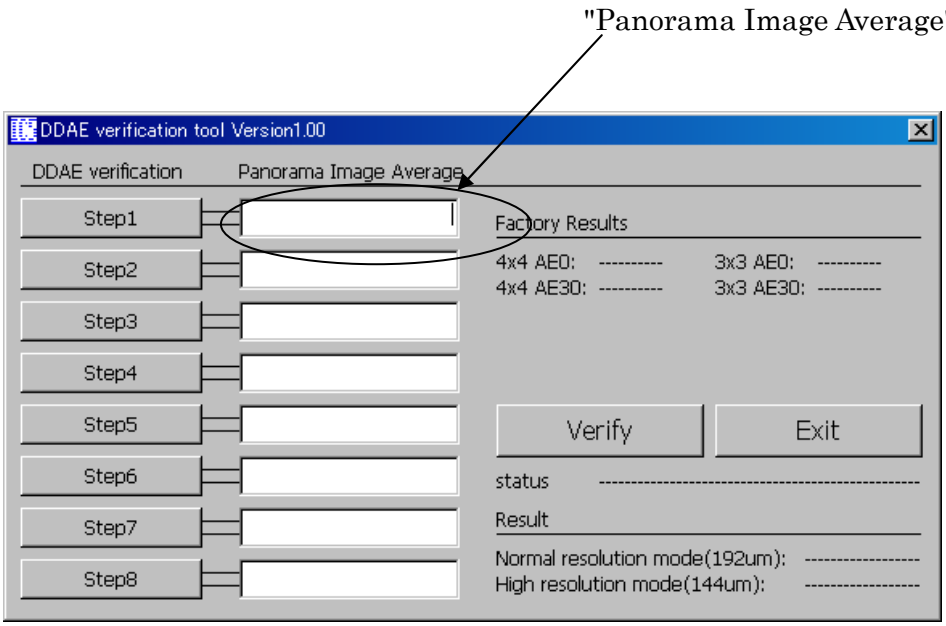
1. Press the "Step 1" Button.
2. Set the test pieces listed in the message box and click "OK".



3. When the exposure mode is set correctly, the following dialog is displayed with a confirmation sound. Click "OK" to start the exposure.



After the image transfer, input the "Panorama Image Average" which is displayed in the Dxladj status bar into the Step 1 input box.



4. Perform Steps 2 through 8 in order as above, each time recording the resulting "Panorama Image Average".

5. Verify the results of steps 1 through 8.
   Click the "Verify" button to view the results of steps 1 through 8.
   Display the result of each exposure mode: Normal resolution (192um) and High resolution (144um).

   OK: DDAE verification succeeded.
   Failed: DDAE verification failed.

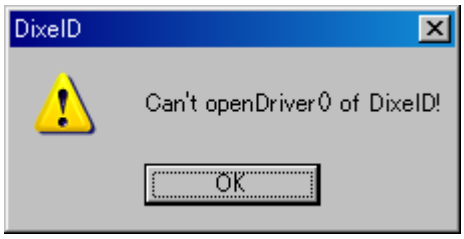
6. Turn off IC5.

7. Exit the DDAE Verification tool.

8. Exit Dxladj.

4. Troubleshooting

1. [Problem]
   The following error message from Dxladj is displayed:



   [Cause]
   The database application and Dxladj are running at the same time.

   [Solution]
   Shutdown the database application then restart Dxladj.

2. [Problem]
   The following error message from the DDAE Verification tool is displayed:

   [Cause]
   The required communication acknowledgement signal was not received from IC5.

   [Solution]
   Turn off IC5 and close Dxladj and the DDAE Verification tool. Restart the procedures from Step 1.

3. [Problem]
   The following error message from the DDAE Verification tool is displayed:

   [Cause]
   Non-integer characters are present in the "Panorama Image Average" input boxes or the box has been left blank.

   [Solution]
   Ensure the correct value has been added to the "Panorama Image Average" box.

Appendix- Electromagnetic declaration

<table>
<tr><th colspan="3">Guidance and manufacturer's declaration – electromagnetic emissions</th></tr>
<tr><td colspan="3">The XDP1 Type EX-1, EX-2 are intended for use in the electromagnetic environment specified below. The customer or the user of the XDP1 Type EX-1, EX-2 should assure that it is used in such an environment.</td></tr>
<tr><th>Emissions test</th><th>Compliance</th><th>Electromagnetic environment – guidance</th></tr>
<tr><td>RF emissions
CISPR 11</td><td>Group 1</td><td>The XDP1 Type EX-1, EX-2 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.</td></tr>
<tr><td>RF emissions
CISPR 11</td><td>Class B
* The XDP1 Type EX-1, EX-2 in combination with the shielded location.</td><td rowspan="3">The XDP1 Type EX-1, EX-2 must be used only in a shielded location with a minimum RF shielding effectiveness and, for each cable that exits the shielded location, a minimum RF filter attenuation of 20dB (at 30MHz-1GHz).

The XDP1 Type EX-1, EX-2 are suitable for use in all establishments, When installed in a specified shielded location, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.</td></tr>
<tr><td>Harmonic emissions
IEC61000-3-2</td><td>Class A *</td></tr>
<tr><td>Voltage fluctuations/flicker emissions
IEC 61000-3-3</td><td>Complies *</td></tr>
</table>

NOTE * It is essential that the actual RF shielding effectiveness and filter attenuation of the Shielded location be verified ensure that they meet or exceed the specified minimum values.

* Harmonic emissions and voltage fluctuation/flicker emissions are not applicable for the XDP1 EX-1, the nominal voltage of which is less than 220V, according to IEC60601-3-2 and IEC60601-3-3.

Guidance and manufacturer's declaration – electromagnetic immunity			
The XDP1 Type EX-1, EX-2 are intended for use in the electromagnetic environment specified below. The customer or the user of the XDP1 Type EX-1, EX-2 should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transients/bursts IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	±1 kV line(s) to line(s) ±2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply lines IEC 61000-4-11	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 sec	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If user of the XDP1 Type EX-1, EX-2 requires continued operation during power mains interruptions, it is recommended that The XDP1 Type EX-1, EX-2 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic field should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Note U_T is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration – electromagnetic immunity

The XDP1 Type EX-1, EX-2 are intended for use in the electromagnetic environment specified below. The customer or the user of the XDP1 Type EX-1, EX-2 should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the XDP1 Type EX-1, EX-2, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance**
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V	$d = 1.2\sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d = 1.2\sqrt{P}$ 80 MHz to 800MHz $d = 2.3\sqrt{P}$ 800MHz to 2.5 GHz Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, [a] should be less than the compliance level in each frequency range. [b] Interference may occur in the vicinity of equipment marked with the following symbol:

NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected be absorption and reflection from structures, objects and people.

[a] Field strengths from fixed transmitters, such as base stations for ratio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicated theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the XDP1 Type EX-1, EX-2 are used exceeds the applicable RF compliance level above, the XDP1 Type EX-1, EX-2 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting of relocating the XDP1 Type EX-1, EX-2.

[b] Over the frequency range 150 kHz to 80MHz, field strengths should be less than 3 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the XDP1 Type EX-1, EX-2.

The XDP1 Type EX-1, EX-2 are intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the XDP1 Type EX-1, EX-2 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the XDP1 Type EX-1, EX-2 as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	**Separation distance according to frequency of transmitter** m		
	150 kHz to 80 MHz $d = 1.2\sqrt{P}$	**80 MHz to 800 MHz** $d = 1.2\sqrt{P}$	**800 MHz to 2.5 GHz** $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

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